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An Investigation into the Development of
Professionalism Amongst
Diagnostic Radiography Students

Cheryl Whiting

Doctorate in Education

The Open University

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1. ABSTRACT

This research explores diagnostic radiography students' perceptions of professionalism and how they learn and develop their understanding of what it means to be a professional. The research takes place at a time when advances in technology, expansion of roles, demands for public service (Hilton, 2004) and economic productivity (Bloor and Maynard, 2006) generate a multitude of competing professional expectations.

BSc. (Hons) Radiography courses rely upon the clinical environment to support the development of professionalism. However, this often undermines professional development, offering its own hidden curriculum that contradicts what is taught within the academic environment (Satterwhite *et al.*, 2000). Subsequently educators are urged to develop evidence based curricula that give attention to the context of practice and the hidden curriculum in order to ensure graduates emerge able to deal with the complexities of practice and espouse to a multidimensional professional ideology.

This longitudinal study adopted a mixed method approach to gather quantitative and qualitative data and sought to establish what one cohort of undergraduate students knew about professionalism and how this came to be learnt as they journeyed through a year long clinical placement. An original Likert style questionnaire was created to assess attitudes towards a

range of professional expectations. Over the course of the year, 18 participants completed 3 questionnaires. Although a repeated measure Multi-factorial Analysis of Variance revealed that mean attitude scores were overall positively orientated, a wide range of attitudes existed. No change in the strength of attitude or convergence was observed over time.

Semi – structured interviews with ten participants supported the findings of the questionnaire and illustrated the dynamics of becoming a professional. The study showed how personal frames of reference and factors within the environment interrelated to destabilise progressive professional development by weakening some professional ideals and preserving a narrow professional identity centred on technical competence. A hidden curriculum of speed and efficiency created professionals orientated towards meeting the needs of self and the organisation rather than patients or the profession. It was concluded that professional development fell short of meeting expected requirements. The curriculum and the values and practices embedded within it did not transform personal perspectives of what it means to be a professional radiographer. There was disparity between the intended aims of the curriculum and the outcomes achieved. The findings provided an evidence base for purposeful curriculum revision that sought to attend to the apparent deficits of learning.

2. INTRODUCTION

In essence, Diagnostic Radiography is the acquisition of images of internal body structures for the purpose of medical diagnosis or intervention.

Whether employed within or outside of a National Health Service (NHS) hospital, radiographers utilise state of the art imaging technology in a variety of settings, many of which are external to the imaging department (e.g. resuscitation rooms and operating theatres). Their work varies in its complexity as each patient differs with respect to age, illness, physical ability and emotional state. Interpersonal communication and patient care are equally important components of practice, particularly as radiographic examinations are often invasive and intimate in nature.

Radiographers operate in an age of “*professional pluralism*” (Schön, 1991, p.17). The advent of consumerism and media coverage of high profile legal cases of misconduct has prompted the public to be more challenging and critical of healthcare practitioners and their practices (Hilton, 2004), increasing the demand for greater public service. This emerges at a time when due to the rising cost of NHS healthcare, the Government has introduced initiatives to measure and improve economic productivity, and benchmark performance (Bloor and Maynard, 2006). What is more, over the last decade medical technology has advanced and the role of the radiographer has rapidly expanded. The introduction of *Skill Mix* (DoH, 2003) has led to radiographers undertaking tasks traditionally seen as the

work of doctors (e.g. image interpretation). These changes not only broaden levels of autonomy but intensify the demand for new knowledge and skills and increase levels of accountability for the quality of service and care. Such pluralism means that in practice, radiographers face a multitude of (and are potentially torn between) competing professional expectations from the public, employing NHS trusts, the Government and associated professional bodies.

Professionalism demands that practitioners are equally committed to fulfilling these multiple obligations (Van de Camp *et al.*, 2004). Radiography educators have a responsibility to ensure that graduating students are not only technically competent but also hold the desired attitudes and exhibit appropriate professional behaviours, which allow students to act upon all professional responsibilities (Richardson, 1999). Accountability extends to those who fund radiography education, the professional bodies, the Government and service users (Murray *et al.*, 2000). Professional philosophies must therefore be endorsed and reinforced throughout the educational process (Gordon, 2003). As well as promoting the development of the profession, it is important the curriculum incorporates methods that enable students to develop technical and interpersonal skills, and comprehend the standards and expectations of practice. In addition the curriculum must cultivate professional characteristics and attitudes that are impervious to change throughout ones lifetime of practice (QAA, 2001;

Richardson, 1999). This requires a capacity for situational responsiveness. Educators need to develop students' capacity for critical reasoning and reflection, as these skills support their growth and maturity as practitioners, enabling them to manage the complexity and changing nature of practice and sustain professional values (Richardson, 1999).

In the UK, radiography education is typically a three year degree programme which leads to a BSc. (Hons) in Radiography or Medical Imaging. Radiography programmes consist of two major components; an academic component which provides students with the theoretical underpinning to their practice and a clinical component in which students apply theory within the context of practice. The components are often discontinuous and students alternate between the two. The *Learning and Development Framework for Clinical Imaging and Oncology* (CoR, 2007) specifies and justifies the overall course aims and content.

Professionalism underpins everything radiographers do in practice, and drives the commitment towards meeting professional responsibilities (Swick, 2000). The framework is aspirational in its focus, and is structured around a broad professional philosophy that aims to treat and educate students as professionals; developing appropriate knowledge, skills, and values to ensure they can meet current and future demands of professional practice (CoR, 2007).

The framework offers the scope for flexibility in its delivery to accommodate local academic and clinical practices. The teaching and learning of specific topics may be presented in either or both components of the course (CoR, 2007; QAA, 2001). It is assumed that collectively the components make it possible for students to meet standards of proficiency and act in a professional manner according to various codes of professional conduct as defined by Regulatory and Professional Bodies (CoR, 2008; HPC, 2008a; HPC, 2007a).

Analysis of the formal curriculum (within the organisation being researched) highlights that the topic of professionalism is specifically addressed within a third year module; however this forms only a small part of its overall indicative content. The rapid development of imaging technology and rising expectations for first post competency means that the formal curriculum is full to capacity; the topic is implicit, rather than explicit within other academic components of the course. Hence there is much reliance upon the clinical (workplace learning) environment to instil and assess the required professional behaviours and attitudes.

Throughout their clinical placement, radiography students work in several clinical imaging areas alongside qualified radiographers of various grades and professional experience. Students are supernumerary; their time in the clinical environment is structured towards acquiring knowledge, developing

patient care, managerial and organisational skills, as well as clinical acumen. This culminates in the achievement of competence and standards of practice. Since practice involves the administration of ionising radiation (which is potentially hazardous), students must be supervised and assisted with their practice at all times.

Each imaging department has a student co-ordinator who is responsible for the organisational management of students and for overseeing their welfare during their time in the department. Daily supervision is on a one to one basis. It is expected that supervising radiographers will assist students to integrate theory with practice and ensure they develop an awareness of, and act in accordance with legislative frameworks and professional expectations. It is assumed that supervisors act as role models, and that through observation and interaction students come to understand and value professionalism as they see it in action. However, the organisation of supervision is less than ideal. It is common practice for radiographers to rotate through departments and work shift systems. This means that students may be allocated a different 'named' supervising radiographer each day. Such discontinuous contact with a large number of supervisors has the potential to make learning within the clinical environment a fragmented process.

Twice a month placement sites are visited by university based (academic) lecturing staff. The visit acts as a mechanism of support for students and staff, with lecturing staff acting in an intermediary capacity. Lecturers liaise with radiographers with respect to clinical issues and facilitate the development of radiographers in their role as practice educators. Lecturers also enhance learning by providing students with complementary practice based tutorial sessions. In addition they offer pastoral support and monitor student progress.

From experience as a radiography lecturer it was observed that levels of professionalism amongst students appeared to be waning. There was an increasing requirement to deal with incidences of unprofessional behaviour reported by clinical staff. In dealing with these incidents it became apparent that students lacked cognitive awareness of professional expectations and were often ignorant of their transgressions. Class discussions on the topic exposed that students considered professionalism in superficial terms e.g. arriving on time. In addition personal research (Gee, 2003) revealed students did not perceive conducting research to be part of a radiographer's role. This raised questions as to whether the educational process and the curriculum promote and instil the expected standards and behaviours or generates a proactive approach towards the improvement and development of radiographic practice.

Maintaining public confidence in healthcare is essential. Unprofessional conduct and a disregard for responsibilities damage the reputation of the NHS and undermine the status of radiographers as professionals. How professional status and professionalism are conceptualised amongst the students is important. Knowledge of occupational social position and professional expectations are central to shaping values, behaviours and beliefs (Liaschenko and Peter, 2004) and are likely to impact upon the quality of, and their approach towards radiographic practice. Student radiographers who function without such a consciousness may not be able to direct or improve their behaviour and may not develop the values required for practice. Consequently radiographers may be perceived as uncaring and indifferent towards their responsibilities to patients, the profession and society.

A review of the literature demonstrated there were similar concerns with respect to professional development in other healthcare disciplines. Reliance upon the clinical environment (socialisation) to instil values is haphazard (Wear and Castellani, 2000); what is observed, experienced and promoted within the clinical environment serves to either enhance or undermine professionalism (Chauvin, 2002).

The negative effects of socialisation upon professional development is widely reported (e.g. Maben *et al.*, 2007; Satterwhite *et al.*, 2000), and in

medicine there is a growing trend towards introducing the concept of professionalism more explicitly within the formal curriculum. However, there is no consensus as to how this should be approached (Swick, *et al.*, 1999; Stern, 1998). Attempts to date are criticised as they lack an evidence base and fail to consider the realities of the clinical learning environment (Hafferty, 2006a, p.292). Previous research into professionalism has either explored *what* students know and think or *how* they come to know and learn through socialisation. Few have focused on their interrelated nature and how this affects the internalisation of the concept. This prompted the need for an original piece of research which 'tapped into' the students experience as a means of finding out perceptions and values. The research question therefore sought to discover: *What are students' perceptions of professionalism and how do factors within the clinical environment support learning, influence knowledge and attitudes and prepare them to meet professional standards and requirements?*

The ultimate aim of the research was to uncover the extent to which the concept of professionalism was effectively embedded within the curriculum and establish the success of the institution's present BSc. (Hons) course in meeting expected obligations and practice demands. It was considered beyond the scope of the research to scrutinise specific aspects of the curriculum. The main objective was to provide an evidence base to be utilised when considering effective curriculum design, strategies or

interventions for achieving professional development, although by way of its design there was also an intention to address gaps within the knowledge base.

Taking on board the criticisms of previous research, a hybrid strategy based on mixed methodology and mixed methods was adopted. During a year long clinical placement, questionnaires and semi-structured interviews were used to gather quantitative and qualitative data from a cohort of radiography students at three set points in time in order to explore their progressive development as professionals. Professional codes of conduct (CoR, 2004; HPC, 2004), transformational (Mezirow, 1997) and social learning theories (Lave and Wenger, 1991) provided a contextual framework which determined the scope and nature of the information gathered.

The findings from the questionnaire showed that attitudes towards professionalism did not change over time. From the interviews it was revealed that personal frames of reference and factors within the environment did not produce a level of insight or generate engagement with the concept sufficient to transform lay students into professionals. A hidden curriculum of speed and efficiency enforced a professional identity based upon technological competence and exposure to a culture that was averse to challenging customary practice brought about uncritical replication of unprofessional actions. In accordance with theorised perspectives on

professionalism this was shown to be an unacceptable state, which if allowed to continue would potentially threaten the status of radiography as a profession. This subsequently confirmed the need to revise the curriculum to ensure practice is underpinned by a wider professional ideology and a capacity for autonomous and critical thought.

The findings add to a sparse body of knowledge about the dynamics of becoming a professional. Whilst several of the findings concur with that of other researchers, the work adds to knowledge in relation to professional identity, transformational and situated learning theories, demonstrating how intrinsic and extrinsic factors interrelate to determine the relationship formed with specific elements of the concept and the impact this has on overall professional identity and development. The value of this research is considered extensive as the outcomes are of consequence to a wide audience of professional educators and practitioners.

3. LITERATURE REVIEW

The literature review explores key concepts relating to professional development where professionalism is taken to be the key value that attaches significance to and unites the various components of practice in the interest of building trust and providing quality care (Van de Camp *et al.*, 2004; Swick, 2000). The topic of professionalism is largely unexplored within radiography; hence much of the literature originates from other disciplines. The initial discussion examines the expectations of a profession and that of its members and relates this to current radiographic practice before considering the attempts that have been made to measure professionalism and develop an appropriate curriculum. The review moves on to critically explore current educational practices in relation to transformational and situated learning theories, exposing the impact these are likely to have on professional development. Examination of key concepts and previous studies provides an underpinning framework for the research. The research question is identified in the concluding part of this chapter, and the methodological approach is justified in relation to gaps within the existing knowledge base and the criticisms levied at previous research attempts.

Establishing radiography as a profession

The radiographic community refers to radiography as a profession. This seems to have been applied and received with minimal debate. Prior to engaging in a discussion with respect to the acquisition of professional values and behaviours, it is fitting to explore whether this claim can be justified. Radiography is practiced worldwide; qualifications, roles, practices and the organisation of healthcare differ, hence this discussion is limited to the examination of radiography as a profession in the context of practice within the National Health Service of the United Kingdom.

The word profession was once traditionally reserved for doctors, lawyers and the clergy; however the introduction of the welfare state and a decline in industry and manufacturing led to a service orientated nation, initiating a rise in the number of professions (Abbott and Wallace, 1990, p.2). The words profession, professional and professionally have evolved; indiscriminately applied, the word profession has become indistinguishable from the word occupation. Opportunistic placement of the term 'professional' as a prefix converts any occupation into a profession, and is used to distinguish amateurs from those who have proficiency or who undertake work full time with pay (e.g. professional footballer) and is used to create feelings of confidence and competence (e.g. professional hairdresser). Hence the word serves to illustrate how people see themselves rather than portraying the realities of their work which is the basis for distinguishing an occupation

from a profession (Pavalko, 1971, p.17). Traditionally society has venerated professions and hence attainment of professional status is intensely desired. Whilst a profession is fundamentally an occupation, not all occupations are professions. Precisely what differentiates the two has been vehemently debated.

Defining a profession

Unearthing a discrete definition of a profession is challenging and problematic (Cruess *et al.*, 2004). Dictionary definitions appear vague and lack consistency in interpretation. Sociological definitions vary depending upon the theoretical perspective taken, for example, MacDonald (1995, p.1) defines a profession as an *“occupation of advanced or complex or esoteric or arcane knowledge”*. In contrast Larson (1977, p.X) states that professions are *“occupations with special power and prestige”*. These are unhelpful in establishing if radiography is a profession, as they assume a distinction can be made on the basis of one factor alone, and lack attachment to occupational practice, skills and values.

Other definitions adopt a trait approach; identified characteristics form the basis for judgement and distinction. This in principle seems straightforward; however there is diversity in the purported characteristics a profession must exhibit (Appendix 1). There has been much criticism of the trait approach, no objective framework underpins its foundation (Walsh, 2000, p.44), and

modern day sociologists persistently use law and medicine as a basis for comparison (Downie, 1990). It is apparent that each criterion ultimately includes / excludes certain occupational groups, and occupations often display characteristics similar to professions and thus distinctions are not clear cut.

Over the last 40 years the criteria have remained unchanged. There is scepticism that the criteria are still a suitable means of defining a profession. They depict professions as isolated entities founded on male characteristics that fail to acknowledge multi-disciplinary relationships or the context of practice, making it difficult for predominantly female healthcare disciplines (like radiography) to be considered professions (Davies, 1996a; 1996b). In today's society the validity and credence of such criteria is questionable. Proposals for new criteria which reflect physical and intellectual activities (Davies, 1996a; 1996b) have yet to be accepted. Hence, the trait approach remains the differential standard.

Measuring radiography against the characteristics of a profession

Since no profession is likely to meet all the criteria, a continuum approach is considered a useful means of analysis. Consideration is given to the extent to which an occupation meets the criteria and is subsequently judged accordingly. However, with no identified point of division between an

occupation and a profession interpretations are therefore subjective (Hoyle and John, 1995, p.5).

The Health Act (1999 section 60) identifies radiography as a profession using a trait approach devised by Lord Benson. Benson's criterion (Benson, 1992 cited in CoR, 2004) uses the actions and principles of the professional bodies and their public obligations as the foundation of a profession (Appendix 2). Although an authoritative source, Benson's criteria disregard the actions of the profession's members or the circumstances within which they function. A more effective assessment would be to explore the extent radiography satisfies the characteristics expected of a profession.

In 1996 Price and Paterson undertook such an exercise using Blane's (1991) criteria, and concluded that radiography was in "*its strongest position yet to claim professional status*" (Price and Paterson, 1996, p.12). Ten years on Adrian-Harris (2006) demonstrates how changing NHS practice, initiatives and legislation have led to further progression of status but suggests "*there is still a gap to close*" (Adrian-Harris, 2006, p.49).

Professions are dynamic; there may be variation in meeting the criteria at different times and under different circumstances (Jackson, 1970, p.5). It is essential to judge radiography against the criteria and re-open this critical debate, exploring more fully how the actions of radiographers potentially

contribute to progression / regression of status, which previous discussions tended to discount.

Altruistic practice that benefits society

There can be little doubt that radiography is principally altruistic, as it provides a service with a valuable social function and benefits society (Abbott and Wallace, 1990, p.1). Its rationale for existence is the continuance of health and provides a basis for diagnosis, management and treatment of medical conditions. This claim is however vulnerable; concern for disease and disability requires personalised service and care, and necessitates considerable time and effort in order to meet patients' biological, emotional and physical needs. The claim is defenceless if radiographers do not operate selflessly in practice, leaving aside personal interests and openly exhibiting a commitment to the restoration of health and well being (Pellegrino, 2002).

Provision of education and training

Professions are considered to be more formally educated (Abrahamson, 1967, p.10). Radiography education is within the higher education sector and includes workplace practice thus also meeting expectations of socialisation. However Government plans to improve the skills of the workforce and extend educational opportunities to all forms of employment, renders this an inadequate distinction.

Postgraduate education frameworks leading to MSc's and PhD's have been developed, however this is still not enough to boost the claim. This only provides evidence of academic accomplishment; it does not convey how knowledge is effectively applied in practice or functions to meet the ideologies which define a profession (Pellegrino, 2002). Previously several areas of radiographic practice have not required the attainment of post graduate qualifications, thus no distinction was made between those who practiced with further qualifications and those who practiced with experience alone. However the NHS *Knowledge and Skills Framework* (DoH, 2004) links role with service needs and personal development, and *Skill Mix* (DoH, 2003) introduced the posts of advanced and consultant practitioner, experts of a particular discipline educated to master and doctoral level respectively. The link between postgraduate education and advanced practice provides a more valid claim to satisfying the criterion (Moore, 1970, p.13).

Since postgraduate education and advanced practice are in their formative years the effects of these developments are unexplored. Masters level education has had a substantial impact on the professional practice and occupational status of nurses, enabling them to influence changes in practice, negotiate role extensions and contribute equally with other professional groups (Gerrish *et al.*, 2000; Whyte *et al.*, 2000). This serves to illustrate the potential for radiography to evolve and break new ground in practice. Academic achievement acts as a mandate for increased authority

and autonomy, as well as validating radiography's position alongside other medical professions (Manning and Bentley, 2003). However, the potential for academic achievement and role development requires funding, positional power and a supportive culture (Gerrish *et al.*, 2000); consequently any deficiency moderates this claim.

The existence and development of a body of knowledge

A key feature of a profession is the possession and extension of an identifiable and esoteric knowledge base (Hoyle and John, 1995, p.45). Nearly all occupations have a knowledge base from which practice is drawn. Few can claim their own body of knowledge (Downie, 1990) and within healthcare this is an unrealistic expectation; subject matter is often interrelated and partnership models of care require knowledge to be shared (Walsh, 2000, p.47). Radiography's association with technology and science means its knowledge base is furnished with the work of engineers, physicist and doctors; thus understood and open to use by other occupations. Society's demands for informed choice, means the knowledge base of healthcare disciplines is thus codified and made more accessible and open to exploration by the public through the internet, thus reducing previous obscurity (MacDonald, 1995, p.165).

However a distinction can be made through the way knowledge is applied and circumstances of use. For occupations like plumbing, knowledge is applied in a more routine and mechanistic manner. There are elements of certainty with respect to the task that has to be performed, there is time to contemplate the problem, and scope to experiment through trial and error in order to achieve the desired outcome (Moore, 1970, p.55). In contrast professions utilise knowledge in providing solutions to problems that are unique, requiring individual assessment and a 'tailor made' approach. There are high levels of uncertainty with respect to outcome which can be achieved by several means (Hoyle and John, 1995, p.77).

This is true of radiography. There is no uniformity between patients, and tasks often occur in circumstances of extreme emergency, hence actions cannot be predetermined. Nevertheless this claim is subject to the capacity for radiographers to apply knowledge, moral and ethical reasoning uniquely to each patient and deal with the immediateness of the situation. This requires judgement, a manipulation of theories and a rational and incisive analysis of circumstances in order to achieve the desired outcome (Hoyle and John, 1995, p.48).

Professions are more publicly accountable with moral obligations to function to high and efficient standards (Thompson *et al.*, 2000, p.53). The judgements radiographers make and their subsequent actions must be

justifiable and conform to standards of practice. Both occupations and professions are dependent on the application of new knowledge in order to function and keep up to date. However the demand for accountability places responsibility for competence, knowledge and upholding standards with the practitioner (Thompson *et al.*, 2000, p.58).

Continued Professional Development (CPD) is now mandatory for radiographers. CPD is a self disciplined approach to learning and updating knowledge and skills relevant to practice which is monitored by the *Health Professions Council* (HPC, 2008b). Providing it is undertaken and appropriately regulated this serves as a mechanism for ensuring knowledge and proficiency is maintained and enhanced, which ultimately improves competence and strengthens judgement and permits a rightful claim against criteria for standards of competence.

In terms of acceptance as a profession it is the expansion of the knowledge base through research that is of greater significance (Nixon, 2001), arguably an activity absent from an occupation. Radiography has yet to achieve the goal of making research a component of practice (Reeves *et al.*, 2004; CoR, 2003). The claims that research amongst radiographers is rising (*Synergy News*, 2006; Price, 1995, p.9) are unconvincing as the number of UK and international radiographic peer reviewed journals remains low.

Radiographers are criticised for failing to publish and engage in research

based activities (CoR, 2003; Nixon, 2001) despite promotion through the *Clinical Governance Framework* (DoH, 1998), the strategy for research (CoR, 2005) and codes of conduct (CoR, 2004).

The paucity of research damages the case that radiography is a profession, particularly as emphasis appears to be placed on knowledge acquired this way (Higgs *et al.*, 2001, p.6). Few research and consultant radiography appointments exist (Adrian-Harris, 2006), which means the responsibility for research is with the entire radiographic community. Even though larger numbers of graduates familiar with research activities now practice, the climate is arguably less favourable than in the early 1990's when radiography degrees were first introduced. Rapid expansion in technology has provided greater diagnostic opportunity but has increased workload. Periods of poor recruitment and retention continue at a time when those retiring also exceed numbers entering radiography and target driven initiatives have created task orientated practices detracting from the development of a research based culture (Adrian-Harris, 2006). It is doubtful that in the foreseeable future any claim on this criterion will be made as several organisational barriers need to be overcome. This has damaging effects, namely failure to satisfy responsibilities towards quality and effectiveness of practices and restricting authoritative influence within healthcare, both of which will suppress professional status.

Not all professions are informed through research, indeed law and the ministry build knowledge on lore (Hall, 1975, p.73). Knowledge can be legitimately gained informally; in practice there is often reliance upon knowledge gained from experience in order to deliver quality care (Higgs *et al.*, 2001, p.6). Such experiences provide the basis for reflection which if undertaken can raise awareness and understanding as well as transforming existing knowledge. Practical knowledge and theoretical knowledge are interrelated since knowledge derived from experience has the capacity to contribute to the knowledge base (Higgs *et al.*, 2001, p.4). However without formal dissemination e.g. through conferences or publication etc. its contribution to expanding the knowledge base of radiography and its authority will not be acknowledged (Higgs *et al.*, 2001, p.7) or utilised as the basis for practice or further research.

Autonomous practice

In today's society the need for accountability, co-ordination of activities and the imposition of regulations and financial efficiency limits the professional autonomy of all healthcare disciplines (Hoyle and John, 1995, p.84 & p.101). Much of healthcare is 'mediative' that is to say the state (through professional bodies and *Department of Health* initiatives and agencies), defines practice and determines how this is delivered (MacDonald, 1995, p.134). This raises the question that if true autonomy does not exist; what level of autonomy is required in order to satisfy the criterion of autonomy?

Freidson (1970, p.69) argued paramedical disciplines had little autonomy since their work was dependent upon and dominated by the work of doctors. This is partly true; radiographers image patients at the request of doctors, often following protocols (Price and Paterson, 1996, p.7). This standardises practice, makes diagnosis more reliable and serves to minimise radiation doses. Nevertheless radiographic practice is not perfunctory and mechanistic. It is multifaceted and centred around individuals and arguably there is scope for discretion and freedom to act in order to achieve the desired outcome. Radiographers should at least be able to claim functional (service level) autonomy enabling them to take appropriate actions in light of arising circumstances.

In recent years healthcare practices have moved on and medical autonomy and dominance is now being challenged (Hilton, 2004). Radiography is reclaiming its autonomy; once again radiographers are interpreting radiographs and diagnosing disease. A move precipitated by increasing workloads, a shortage of radiologists (Price, 2001), and plans by the *Department of Health* to maximise skills, expand roles and break down professional boundaries as a means of improving the quality and delivery of services and care (DoH, 2000; 2001). Radiographers are also now performing for example, barium enemas, undertaking biopsies and injecting radiographic pharmaceuticals (Price *et al.*, 2002). As audits reveal,

performance and standards match that of radiologists (Murphy *et al.*, 2002; Robinson *et al.*, 1999).

Developments are gaining the support of radiologists (Forsyth and Robertson, 2007) and it is unlikely they will reclaim exclusive command, particularly as there is now an infrastructure supporting the move with documented evidence to prove radiographers' competence. Although radiography has successfully negotiated changes in practice it is open to debate whether this can be regarded as sufficient and an unassailable reason to support a claim that radiographic practice is autonomous.

Many extended roles are with delegated authority, with clinical directors determining the scope of practice. This means that levels of autonomy will vary with some radiographers facing greater restrictions on practice than others. The continuation of such a state would categorically hinder professional status. However changes to customary practice are often controlled and protracted, initial restrictions are likely to be lifted as practices become more conventional and widely accepted, creating greater uniformity and standardization of practice.

Donovan and Manning (2006) consider that autonomy and role expansion for radiographers can only go so far as they lack clinical experience of disease to underpin their judgement. Whilst this may currently be true it is a

despondent attitude and assumes radiography education cannot evolve to meet such requirements. However research from Australia (Lewis *et al.*, 2008) calls into question a radiographer's capacity to act with personal discretion and echoes Freidson's (1970, p.69) line of reasoning. The study shows how the paternalistic dominance of radiologists left radiographers feeling subservient and powerless to act with autonomous intentions even at a functional level. This had a negative effect on professional responsibilities, with a tendency to rely on others to make clinical decisions (Lewis *et al.*, 2008), a state which continues to sanction medical dominance, and represses autonomous development.

Monopoly on practice

Claiming a monopoly on practice is untenable. As a consequence of *Skill Mix* (DoH, 2003), roles are less demarcated and dependent upon a team based approach. Radiographic practices intersect with those of others; correspondence exists fundamentally to improve patient care and efficiency e.g. midwives perform ultrasound. Although radiography does not have a veritable monopoly on practice, the majority of work undertaken by radiographers is only performed by those who have the legal entitlement to call themselves radiographers which is granted through registration with the *Health Professions Council* (HPC). This ensures dominance of practice remains with radiographers. Using this argument it could be claimed radiographers have an overall monopoly on practice.

Professional registration and regulation

Allegations of misconduct (documented within HPC, 2007b) do little to instil public confidence and damage the reputation of a profession.

Radiography has an independent body which sets standards for admission and continuation of practice. This provides reassurance to the public that a specified level of clinical competence and standard of behaviour can be expected (HPC, 2008a). Registration with the HPC is not absolute. It is subject to conditions and registrants must provide evidence of continually updating their clinical skills and knowledge. Where there is failure to meet or comply with the standards the HPC has the authority to remove, suspend or restrict registration consequently prohibiting practice (HPC, 2008a).

Registration is not unique to professions but generally for professions 'licensing' is mandatory. Occupational licensing occurs mainly where public safety may be at risk, e.g. gas appliance fitters by law need to be registered with the *Council for Registered Gas Installers* (CORGI, 2005). Elsewhere registration is commonly an optional means to demonstrate competence and commitment to achieving standards (Ellis and Hartley, 1995, p.118).

Possession of a code of conduct and ethics

The possession of a code of ethics is seen as a defining feature of a profession, and includes statements which reflect expected behaviour and service ideals. The HPC and the *College of Radiographers* (CoR) both issue

such statements (CoR, 2008; HPC, 2008a); hence radiography can claim to satisfy this criterion. Again this is not an element unique to a profession, occupations also develop codes of ethics as a proclamation of their commitment to raising standards. Whilst these codes exist the strength of the claim is dependent upon registrants committing to the values and behaviours expected and a capacity to self regulate, as impropriety is likely to devalue their existence and diminish status.

The existence of a professional community

Radiography can claim to have a community; this exists through membership to *The Society of Radiographers*. The organisation links members through national and regional activities. It functions to standardise the profession, to engage members in pursuit of the profession's promises to society, as well as providing education and advice on practice issues. The strength of the culture and professional identity relies upon the community actively uniting and engaging with this sense of purpose, since this provides a platform for a collective voice to society with the capacity to influence political decisions thereby bringing about improvements in practice and enhancing the status of the profession. A community is not something unique to a profession; several occupational associations exist. Whilst the existence of an occupational community may bring a sense of identity, there is doubt that they exist with such an influential intention (Pavalko, 1971, p.25).

Privileged relationships with the public

Although not an explicit criterion, the relationship that exists between the public and members of a profession emerges as a discerning feature. Communication between members of a profession and clients usually occurs on a one to one basis and is considered privileged, requiring confidentiality (Abrahamson, 1967, p.13). This is true of radiography; delivering care and achieving a diagnostic outcome requires radiographers to be informed of personal information relating to symptoms and provisional diagnosis. Furthermore practice often necessitates a need to examine body parts and perform intimate clinical examinations. This progresses the relationship between the patient and radiographer into one of trust with a tacit understanding that confidentiality will be maintained in exchange for personal information, which if made known carries consequences for the patient (Burkhardt and Nathaniel, 2002, p.227).

Although there are some restrictions on the release of personal information held on clients in accordance with the Data Protection Act 1998 (Information Commissioner, 2005) occupations have less of an obligation to maintain confidentiality. Assuming radiographers uphold their duty towards confidentiality (HPC, 2008a) radiography can declare to hold another characteristic akin to a profession.

Public recognition as a profession

Public recognition is considered a crucial element (Downie, 1990). Even if an occupation meets the expected criteria it cannot regard itself a profession without public acceptance (Hall, 1975, p.74). From experience public recognition of radiography as a profession is low. Radiographers are perceived as 'button pressers' and assistants to doctors with characteristics akin to nurses. Radiography lacks distinctive role models and public visibility; unlike doctors and nurses they receive little media attention. Contact with radiographers comes through referral; this is often a short and isolated event and patients rarely witness many aspects of the role such as reporting or quality monitoring audits. This limits awareness of the full extent of radiographers' roles and skills. Consequently for several reasons radiography cannot claim to fulfil this criteria. However this does not immediately relegate the classification of radiography as an occupation. It can be regarded as a profession when it meets the criteria on which there is an overall consensus (Hoyle and John, 1995, p.15).

Reviewing radiography as a profession

If examined against the criteria (listed in Appendix 1) on which there is the most consensus (body of knowledge, practice which benefits society, provision of education and a code of conduct), radiography could be classed as a profession. However there appears to be consensus on a limited number of characteristics and these characteristics are commonly found

amongst several occupations, and thus does not appear to provide a firm basis for a conclusion.

Exploration with reference to other characteristics reveals that radiography could be regarded as a semi-profession, not in the sense that it lacks characteristics but in a state of transition working towards gaining full professional status. On the whole radiography is showing strong evidence that it is deserving of being classed as a profession. Some characteristics are yet to be fully satisfied but there is evidence which supports the notion that radiographic practice has several elements in common with accepted professions. Thus on a continuum scale, radiography can at least profess to be placed in the direction of the 'profession extremity' a conclusion which parallels that of others (Adrian-Harris, 2006; Price and Paterson, 1996), reflecting little change of status in the last decade.

The location of radiography between the two ends of a continuum means that radiography is not regarded as a member of either group. The consequence of which is an indeterminate state of marginality, where there are contradicting expectations and uncertainty with respect to which behaviours one has to adopt and comply with (Pavalko, 1971, p.31).

Being classed as a profession is important as it implies status, respect and that the role of the radiographer is valued. This improves recruitment and generates competitive selection processes, thus improving the quality of applicants in terms of skill, humanity, academic ability and ambition. One anticipates this would raise the quality of care and clinical standards. Ultimately this would raise public recognition, levels of confidence with respect to knowledge and proficiency as well as generating trust and increasing the potential for greater financial reward.

Radiography has the capacity to move from this state of marginality and securely establish itself as a profession. It is evident that radiography faces challenges in raising its professional status but current healthcare developments and educational frameworks offer radiography the opportunities to secure its position as a profession. The progressive changes in practice provide greater scope for autonomy and research hence, in time fulfilment of criteria could be attained. The vulnerable nature of many of the criteria signifies the future of its status as a profession rests with the radiographic community, individual practitioners and equally students since they are the radiographers of the future. It is evident that a claim on several characteristics can only be secured through the actions of radiographers and hinges on their orientation towards professional ideals.

Whether or not radiographers see themselves as part of a profession appears unexplored. Munro *et al.* (2005) asked 278 people from various occupational groups (spanning 8 socio-economic groups) if they considered themselves a member of a profession. Those surveyed included a group of 40 nurses and practitioners allied to medicine, (unfortunately no indication is given as to whether this included radiographers). Although 75% of this group considered themselves to be in a profession 75% failed to identify a knowledge base and service orientation as a distinguishing element, only 25% acknowledged licensing, and only 13% identified the codes of conduct as a feature. None of the group recognised such features as autonomy, standards of education, self governance or expertise. Furthermore 63% felt that qualifications determined their professional status. Not only does this raise doubts over educational processes but exposes that were such findings to exist in radiography the capacity to accept professional responsibilities, uphold professional expectations, maintain and progress professional status would be questionable, because awareness of professional characteristics and personal actions are considered to be related (Richardson, 1999).

The relationship between professions and professionalism

Much of the claim to being a profession predominantly relates to professionalism i.e. alignment of self with professional expectations. As consumers of a service patients have become more challenging and critical

of healthcare practices and have come to expect higher levels of professionalism (Hilton, 2004). Professionalism is significant because it brings improvement to practice, patient care, services, and outcomes which create trust (RCPoL, 2005, p.44). It is this trust which extends a professions place within society and the power and rewards it receives (Hilton and Slotnick, 2005). Illness places patients in a vulnerable position; the need to restore health necessitates dependence on others. This is often without choice and trust is forced rather than voluntarily provided. Radiographers deal with complex illness on an intimate level, and encounter situations and tasks not typical of other occupations; hence within healthcare the concept of trust becomes more salient.

Trust has two components; *primary trust* based upon direct interaction with individuals which precedes *secondary (background) trust* which is tacit in nature and developed without a direct encounter (Frowe, 2005). Primary trust is transcendental with a capacity to go beyond a direct interaction. Hence radiographers' pursuit of professionalism extends trust collectively to all radiographers and the healthcare system in which they operate as well as associated professional bodies and training establishments. Without primary trust, secondary trust will not occur and radiography is left unable to influence public perception or claim professional status. Although it is argued professionalism is not enough to assure status as a profession, it is imperative to the process (Richardson, 1999).

Defining the concept of professionalism

Professionalism as a concept is a neglected discussion within radiographic literature. Debates within other healthcare disciplines show it is not an easy concept to define. Hafferty's (2006b) analytical review of medical 'authoritative voices' (i.e. 10 articles consistently cited and dominant within discussions on the subject) concludes that whilst it is predominately viewed as a set of principles, values, attitudes and behaviours to be applied throughout practice, there is no core definition.

Models of professionalism

Various models of professionalism exist. These appear to be based on personal perspectives and from collaborative discussion within one particular discipline with or without input from patients. Immediately obvious is the divergence of opinion with respect to the behaviours and values deemed central to professionalism. For example Swick's (2000) personal perspective considers that altruism, ethical practice, competence, accountability and good judgement are important. In contrast the *Charter of Medical Professionalism* derived from the opinions of a panel of 20 doctors from America and Europe (ABIM Foundation, 2002) reflects the changing nature of healthcare practice. It considers the admission of errors and the use of finite resources amongst other things. Other modern aspects can be seen in the work of Hilton and Slotnick (2005) who consider team working,

and support the idea of working within the community to enhance awareness of issues relating to health.

The choice of features rests on the philosophical perspective taken; this subordinates the significance of components identified within other perspectives. For example whilst Swick (2000) places emphasis on the fulfilment of the social contract with society, promoting a humanistic and principled ideology that is patient-centred, Hilton and Slotnick (2005) give prominence to the possession of phronesis (practical wisdom); attaining knowledge and clinical acumen in order to effectively deal with problems encountered in practice. Within Hilton and Slotnick's (2005) work less importance is given to the individual performing the task.

The variance illustrates how professionalism is context dependent. Physiotherapy educators consider good communication skills and professional image to be key characteristics (MacDonald *et al.*, 2001). This differs from that of doctors, who also have different opinions amongst themselves (e.g. ABIM Foundation, 2002 and Swick, 2000). Whilst models related to non-medical disciplines share similarities, differences are also observable. For example, within law, honesty, continuing professional development and competence are portrayed as the foundation to professionalism, but emphasis is placed upon courteous client advocacy

(Rizzardi, 2005) and accommodating societal and professional diversity (Nicolson and Webb, 2005).

The attributes considered within the models are by no means exhaustive, for instance Van de Camp *et al.*'s. (2004) systematic literature search identified 90 different constituents of professionalism. Likewise ten focus groups of medical practitioners generated a list of 254 different attributes (Rabinowitz *et al.*, 2004) which suggests each model / perspective is not as inclusive as the authors propose.

The changing nature of professionalism

Professionalism is a fluid concept influenced by many things such as social and political climates, culture, research and development. These change and characterise professionalism, which means not only is it divergent but constantly needs to be renegotiated (Cruess *et al.*, 2004). Professionalism changes because successive generations have different values which ultimately penetrate and transform the focus of professional practice (Smith, 2005). For instance today's society values life style balance which changes the connotation of altruism and its level of importance (Hafferty, 2006b). Misconduct prompts new initiatives, a renewed focus or a change of emphasis on the meaning of professionalism. For example, the murderous actions of Dr. Harold Shipman brought greater prominence to self regulation

(RCPoL, 2005, p.3). Sociological and educational literature also develops trends towards particular aspects, like self reflection (Hafferty, 2006b).

Roles and responsibilities, level of experience etc. are also significant to how the principles are realised. This is apparent in the work Wagner *et al.* (2007). Through the use of focus groups they show how perceptions of professionalism differ amongst medical students, their educators, practicing doctors, and service managers. Core themes relating to technical knowledge, patient relationships and virtues were evident, however there were differences. Students emphasised communication but did not consider improving the quality of care unlike educators and doctors. Educators focused on duty to patients whereas doctors focused on duty to their peers. What was more interesting is that perceptions deviated from that of a patient group.

Public perspectives of professionalism

Few models seem to include the opinions of the public. Consumerism has meant that service users' perspectives are increasingly important as these are the basis by which quality of care is judged (O'Connor *et al.*, 2000). Healthcare staff are often criticised for underestimating such expectations (O'Connor *et al.*, 2000). Several studies show that beyond the expectation of competence, patients consistently value time, individual care and

compassion (Wagner *et al.*, 2007; Davis, 2005; Stewart-Hegedus, 1999), characteristics not explicitly evident within the models discussed.

Patient expectations are relevant as they affect the way professional actions are perceived. Failure to appreciate patient perspectives is thought to arise from immersion with one's own professional culture causing practitioners to identify less with patients (O'Connor *et al.*, 2000). A study by Tsimitsiou *et al.* (2007) noted a similar effect; doctor-centred attitudes progressively developed throughout training. Subscribing to a definition of professionalism that does not consider patients' expectations will like any unprofessional action, lower satisfaction and erode public trust.

Cognisant of this, *The Royal College of Physicians of London* (RCPoL) formed a working party that included members of the public as well as doctors in the UK. Their remit was to discover how professionalism was understood and modernise the medical concept of professionalism. From the analysis of an extensive number of interviews, questionnaires, and peer reviewed literature they concluded that values, behaviours and relationships underpinned public trust and that in day to day practice there needed to be a commitment to 6 aspects: integrity, compassion, altruism, continuous improvement, excellence and working partnerships (RCPoL, 2005, p.45). Although integrative, this model remains unexceptional and typical of other models.

The variable and contextual nature of practice makes it difficult to succinctly present an all inclusive characterised framework of professionalism and means that models of expected professional behaviours are not interchangeable. Radiographers like other healthcare practitioners interact with the public and role expansion means that radiographic practices traverse medicine, so to some extent it can be assumed this necessitates similar attitudes and behaviours, and indeed many of these values and behaviours are within the standards of conduct (HPC, 2008a). The unique aspects of practice mean that such models are unlikely to capture the true essence of professionalism in radiography; they serve therefore only as exemplars.

Professionalism as a multidimensional concept

Whilst principal values and behaviours are variable and subject to transformation, the underpinning philosophy of professionalism is consistent within the models. Professionalism is multifaceted and regardless of expected comportments, commitment to their employment in practice is demanded.

The models emphasize how professionalism embodies the unification of attributes and behaviours and demands multiple obligations and commitment to the healthcare system, practice discipline, and society as well as the patient. The work of Van de Camp *et al.* (2004) considers more

explicitly the multidimensional nature of professionalism. Their categorisation of professional constituents led to a conceptual framework which lays emphasis on a composition of three equally important central themes: interpersonal professionalism (relating to interaction with patients and healthcare practitioners), public professionalism (relating to the demands of society) and intrapersonal professionalism (relating to personal characteristics). The latter category underlines that professionalism goes beyond the concept of the individual in practice and implies a notion of an individual fit for practice, prepared and able to meet society's expectations through continual assessment and development of self. Although some of the models favour particular obligations, it is evident there is an implicit representation of Van de Camp *et al*'s. (2004) framework within them. Authors seemingly adopt a middle ground enabling the expectations of all stakeholders to be met.

Associated characteristics and features underpinning professionalism

The RCPoL (2005, p.15) express the identified aspects of professionalism as 'commitments'. This indicates there has to be an allegiance towards and adherence to their application in practice. For this there needs to be a permutation between knowing and doing. Lawrence (1999, p.107) sees it in terms of "*thinking, discussing, and deciding as well as taking physical action*". This reflects the continuous transference and pursuit of identified behaviours and values so that they become a recognised and customary

approach to practice. It conveys that professionalism is a "*state of mind*", not the execution of a rule based convention but a genuine disposition (Clamp, 1990, p.53).

It also reflects a need for critical and independent judgement and personal reflection. Hilton and Slotnick (2005) implicitly embody the thoughts of Schein (1973 cited in Schön, 1991, p.45) that professionalism demands convergent knowledge yet the complex and uncertainty of practice brings divergent practice and a need to meet each individual patient's unique requirements. Critical judgement brings discernment enabling practitioners to thoughtfully select and apply their knowledge to meet situational demands, solve similar problems and resolve value conflicts which may arise (Eraut, 1994, p.206).

Jarvis (1983, p.103) notes that overt assessment of competence is rare once qualified. The capacity to reflect acts as a process for self regulation, and enables practitioners to evaluate and autonomously manage personal actions, thoughts and level of competence (Eraut, 1994, p.115). Critical judgement and reflection facilitates adjustment to the realities of practice. Without either, the practitioner can only operate in the realms of technical rationality. This compromises decision making and self regulation (Schön, 1991, p.68) and leads to less than ideal practices being unconsciously applied (Jarvis, 1983, p.103).

Within the models there is a tendency towards viewing professionalism as an overt activity. Lawrence (1999, p.107) considers professional conduct should be viewed in terms of inactivity and omission, thus failure to display what is deemed appropriate values, attitudes and behaviours is regarded as unprofessional. By the same token Jarvis (1983, p.79) considers each aspect of professionalism to be essential, hence true professionals are those who pay attention to each and every requirement. Hafferty (2006a, p.283) extends this idea, insisting that each element must be part of ones identity. Exclusion of elements generates surface professionalism; an incomplete professional who can imitate professional actions but is not with any genuineness a professional.

The models also tend to imply that professionalism is an individual pursuit. The RCPoL (2005, p.43-44) believes it to be built upon co-operative engagement. Those whose interests are represented e.g. individuals, employers, peers, professional associations and educators all have a responsibility to collectively support professionalism to ensure the potential for establishing values and maintaining standards is maximised.

Redefining professionalism

Professionalism has two contrasting features: variable values and behaviours and a static core subtext, but this does not prevent a conclusion from being drawn (and indeed a definition) as to the meaning of

professionalism. That is, professionalism is a philosophy that one embraces and commits to applying in practice, in order to build trust and enhance the quality of practice and its outcomes. It incorporates genuine tendencies towards judicious action and personal reflection for the purpose of the preservation of identified creditable values and behaviours.

Defining professional expectations through codes of conduct

Despite the absence of debate about professionalism within the context of radiography, radiographers are not without guidance. The expected standards of competence and behaviours for students and registered radiographers are detailed in three key documents: *Standards of Conduct, Performance and Ethics* (HPC, 2008a) and *Standards of Proficiency* (HPC, 2007a). Members of the *College of Radiographers* (CoR) will also receive the *Code of Conduct and Ethics* (CoR, 2008), seen as an adjunct to those published by the *Health Professions Council*.

All three documents represent codes of conduct which promote social values, moral qualities and ethical principles such as justice, beneficence and nonmaleficence (Cribb, 2002, p.25). The codes in a sense encapsulate the fundamentals of professionalism, and aim to place expectations more specifically within the context of practice. However their connections to the concept of professionalism are implicit and their prescriptive inventory style presentation does not reflect the unified nature of professionalism. Phrases

like “*you must always...*” (HPC, 2008a, p.3) stress obligations as rule based activities which are externally enforced. Thus standards represent behaviour (what you do) and not internal ways of thinking (how you are).

Comparison between codes of conduct reveals inconsistencies with respect to focus and content. The HPC exists to “*protect the health and well being of the people who use the service*” (HPC, 2004, p.1), representing the interests of the service and not the interests of radiography as a profession. The CoR (2008) endorses excellence in care and service provision, promoting evidence based and reflective practice and places emphasis on the development of the service and profession through research. In the past the CoR codes of conduct mimicked many of the HPC standards, however its revision in 2008 considers other aspects not currently within the HPC standards such as environmental sustainability and physical appearance.

The professional and regulatory bodies entrust registrants individually and collectively to honour the codes / standards they lay down within both professional and personal life (CoR, 2008; HPC, 2008a). The existence of differing codes gives rise to varying expectations and raises questions about compliance and judgement against such expectations. In terms of practice within the UK it is the HPC standards that are the benchmark and judge of professionalism (Appendix 3). Registration with the HPC is a mandatory requirement for practice whereas membership of the CoR is voluntary, so

not all radiographers will be familiar with the expectations of the CoR, or be obliged to pursue them. Regrettably due to financial constraints the institution under investigation no longer pays students' subscriptions to the CoR. This potentially limits exposure to CoR literature which promotes professional values and its adoption in practice.

The capacity of the codes of conduct to influence behaviour

Although the codes have the potential to influence behaviour, they may be of limited significance in determining how people actually behave. The codes represent ideals grounded in technical rationality. They assume practice can be compartmentalised into discrete modes of action. Little recognition is given to the complexities of working practice and the situations that arise which often bring about conflict between principles (Edgar, 2003, p.162). Furthermore, since our actions and moral reasoning arise during development, through experience and socialisation (Colinger, 1996, p.453 & p.455), the usefulness of the codes as a tool to encourage appropriate ethical and professional behaviour is questionable.

It has previously been shown that there is a lack of knowledge and awareness with respect to the codes and their content. Miller *et al's.* (1992) survey of 514 nurses, nurse managers and nursing students across eight American states showed that 59% of participants claimed not to possess a copy of the code of conduct. Moreover there was no correlation between

possession and grade, length of service or education. Yakir and Glick (1998) discovered (by means of a questionnaire) that three months after taking the physicians oath only 18% of 301 first year medical students could recall just 3 of its 10 obligations, 72% cited obligations that did not exist and only 3% indicated it would lead to a change of behaviour. This research not only supports the idea that codes of conduct have limited impact upon behaviour but it also suggests that knowledge of content is transitory. Whilst a lack of possession / awareness of the codes may, according to Miller *et al.* (1992), constitute unprofessional behaviour, the findings of Yakir and Glick (1998) indicate that familiarity is not enough.

A lack of awareness does not necessarily mean behaviour will ultimately be unprofessional or unethical. It is considered that culture and experience have a greater influence on behaviour and decision making (Verpeet *et al.*, 2005). The 27 nurses interviewed by Davis (1991) reported utilising personal and family values, experience gained through practice and socialisation as sources of reference to determine, expand and modify their behaviour. This suggests that it is possible to function without knowledge of the codes. However this would mean behaviour would be dependent upon individual values and beliefs which are variable and may conflict with society's expectations and compromise patient care (Esterhuizen, 1996). It is generally accepted that codes therefore need to exist in order to provide

an illustration of desired characteristics and values, so to encourage universal ways of thinking and acting amongst members of a profession.

The manifestation of professionalism within practice

In order to act with professionalism, there needs to be an understanding of the concept, its holistic nature and its association with one's role. How professionalism comes to be understood and inculcated into practice triggers a 'nature versus nurture' debate. Hilton and Slotnick (2005, p.59), believe it is an "*acquired state rather than a trait*", something to be gained over time as a consequence of exposure to the environment. Others like Cusick (2001, p.91) take the stance that "*professionals are people long before they are professionals*" and are critical of opinions that discount influential aspects on behaviour, such as personality, attitude, previous experience, and culture.

The significance of personal attitudes and characteristics

Personality is a unique multifaceted phenomenon, which is influenced by our genes, biological make up, upbringing, social encounters, learning experiences and cultural heritage, all of which intertwine to produce who we are and how we act (Colinger, 1996, p.453 & p.455). Whilst personality is fundamentally resistant to change, attitudes are considered to be transient constructions (Bohner and Wänke, 2002, p.5). These change over time as a

result of increased exposure, reinforcement, personal experience and observation (Bohner and Wänke, 2002, p.78).

The significance of personality and attitude in determining how professionalism transpires should not be overlooked. Swick (2000) believes humanistic and professional actions are founded upon specific traits and attitudes (e.g. compassion and altruism) and that it is not possible to function as a professional without such characteristics. These characteristics create a link to the emotional dimension of professionalism which is needed to appreciate the feelings of others and generate commitment to act in their best interest, and is therefore necessary to deliver effective care.

If professionalism is an acquired state then there is an assumption that undesirable personality and attitudes are irrelevant, changeable or can be isolated, and that those required will permeate as a result of environmental exposure. Such a view neglects to consider that pre-existing traits and perspectives are hard to change (Ajzen, 1988, p.7). What is more they provide the foundation for construction of meaning and judgement and this affects how new information is processed and the attention it is given (Bohner and Wänke, 2002, p.191). Without traits such as self awareness, undesirable characteristics and attitudes are unlikely to be critically explored in light of new information. This means that they unfortunately remain the

basis for behaviour (Bohner and Wänke, 2002, p.231). Thus personality and attitudes are an integral part of acknowledging and acting in response to defined professional expectations and should not be disregarded.

The importance of acquiring a professional orientation

Hilton and Slotnick's (2005, p.59) opinion that professionalism is an acquired state lacks personal justification. Exploration of the admissions process and the inexperience of those entering radiography provides a defensive argument. Typically course admission processes place emphasis on selecting potential students who not only demonstrate academic and problem solving abilities but who also show evidence of possessing desirable professional and ethical behaviours, and awareness of professional expectations (Bore *et al.*, 2005). The basis for this is to preclude those with unfavourable attitudes and traits from entering the programme. However, literature suggests this is an ambitious and idealistic course of action since there are several flaws.

It appears that professional behaviour cannot be predicted. From a retrospective review of the pre-entry application essays written by 153 medical students Stern *et al.* (2005) found no correlation between evidence at entry to the outcomes of assessments and evaluations of professional behaviour after 3 years into the programme. The findings suggest that standard methods of pre-entry selection may fail to sufficiently differentiate

students who are likely to display unprofessional behaviour and that personality and attitudes can only be surmised.

Despite the effort to ensure careful selection some students entering the programme will invariably lack certain characteristics or hold traits and attitudes at odds with those required. It is worth noting that like all NHS employees, Criminal Record Bureau checks are undertaken to rule out past involvement in criminal activities prior to entry on to the programme. Such a measure does not however avert the possibility of unprofessional behaviour as students or as qualified radiographers.

Even if students do possess the desired traits and attitudes, behaviour is nevertheless unpredictable as behaviour is context dependent (Colinger, 1996, p.78). Radiography students will face situations and conflicts never previously experienced. For many this will present a challenge which may constrain their capacity to function in a professional manner (Ginsburg *et al.*, 2000). Thompson *et al.* (2000, p.29) argue that new entrants are lay people, and thus potentially unaware of their full role and responsibilities. Karaoz's (2004) discussions with nursing students during the first week of term one, supports this view. They were unable to define a profession and appeared to have a limited understanding of a nurse's role. Likewise radiography students have been shown to equate practice to that of 'taking x-rays' (Coombs *et al.*, 2003). This suggests that students may fail to appreciate

the knowledge, skills, attitudes and behaviour that need to be adopted (Thompson *et al.*, 2000, p.29). This holds up the view that professionalism is something that is acquired.

Hilton and Slotnick (2005, p.59) describe the period of acquisition as *“proto-professionalism... a lengthy state in which the learner develops skills and knowledge, and gains experience needed to acquire professionalism”*. They imply that appreciation of the expected professional requirements comes through reflection, internalisation and maturation and is thus a transitional process. However this is contextualised to the development of knowledge and skills. Their concept does not explicitly consider that the transition needs to encompass the replacement of personal perspectives and attitudes in line with that of the profession. Since professionalism is acquired not only through practice but also through redefining oneself within the context of professional practice (Smith, 2005).

Although there is evidence to suggest that people choose careers which match their personality and interests (Colinger, 1996, p.427) there is no significant relationship between a profession and the characteristics of its members (Freidson, 1970, p.186). Reasoning behind decisions to enter radiography varies, whilst patient contact is rated highly, the use of technology, the vocational nature of the course and the prospect of job security also have a strong appeal (Vosper *et al.*, 2005; Coombs *et al.*,

2003). A growing trend towards self orientated values (Rognstag and Aasland, 2007; Jensen and Aamodt, 2002) means it cannot be assumed that the primary intention is to care for others. Widening participation generates a profession which is representative of society, this means that students also differ with respect to age, gender, ethnicity, education, life and work experience, and personality. As well as varying values, attitudes, and behaviours (which may or may not be desirable), diversity also generates ambiguity with regard to what professionalism means; different interpretations will give rise to different behaviours and common values are less likely to exist. Arguably this presents a need for professionalism to be a prominent feature of the curriculum.

Teaching and assessing professionalism

Within medical education there has been a renaissance; prominence is being given to the topic of professionalism in the formally taught components of the course. The need to respond to changes in practice and decreasing public trust has provided the justification for building cognitive components within the course structure as a means to convey and examine professional expectations (Cruess and Cruess, 2006). There is an abundance of examples and recommendations for teaching professionalism (e.g. Cruess and Cruess, 2006; Steinert *et al.*, 2005; Howe, 2003). Several innovative teaching strategies, such as problem based learning, role play and simulated patients have been reported to be effective and appropriate

for exploring professional issues and changing behaviour (Gordon, 2003; Stephenson *et al.*, 2001). Typically these replicate expected experiences and provide an opportunity for personal development, critical reasoning and reflection (Wear and Castellani, 2000).

The value and effectiveness of this move has sparked some debate. There is criticism that the venture has been hasty, remains grounded in a scientific approach and lacks an evidence base with respect to content and design (Wear and Kuczewski, 2004). With no agreed definition of professionalism, choice of content and manner of delivery are arbitrary (Swick *et al.*, 1999). Justification is either based upon the opinion of course teams and stakeholders (e.g. Steinert *et al.*, 2005), or recommendations by the professional bodies (e.g. Elcin *et al.*, 2006). Whilst it is agreed that the topic of professionalism needs to be introduced early within the programme (Elcin *et al.*, 2006; Steinert *et al.*, 2005) the point at which it is appropriate to introduce particular topics and themes is not contemplated. Discourse does not seek to define or rationalise expectations upon qualification, or explore the requisites for 'achieving' professionalism.

Several authors have systematically reviewed methods of assessment / evaluation. Each similarly concluded that methods are numerous and that there is no gold standard (e.g. Jha *et al.*, 2007; Veloski *et al.*, 2005; Arnold, 2002). Documented attempts show that an extensive range of professional

comportments have been assessed; questionnaires, observations, vignettes, self and peer assessment, portfolios and standardised patients are just some of the methods utilised (Jha *et al.*, 2007; Arnold, 2002). However, each has its own merits and limitations, and is subject to bias. Hence no one method is reliable or valid and with some behaviours difficult to measure (such as commitment to life long learning); it is apparent that assessing professionalism is complex (Arnold, 2002).

There is much criticism of assessment attempts; many tend to assess single elements of professionalism rather than its universal construct (Veloski *et al.*, 2005) and focus on behaviour rather than values (Rees and Knight, 2007). Since professional actions are often the result of a resolution between conflicts, the processes that lead to action, the values which take precedence, and how students view their actions are never identified (Ginsburg *et al.*, 2000). Although data collection tools exist, these have predominantly been developed to assess cohorts as part of research or to evaluate a programme of study, the resultant data is therefore often limited to one point in time (Veloski *et al.*, 2005). Accordingly the permanence of attitude / behaviour is not known; moreover the assessment / evaluations are detached from the realities of practice. Hafferty (2006a, p.283) criticises this 'surface' approach as it fails to expose professional identity.

The effects of the hidden curriculum

Scepticism about the effect the formal curriculum will have on generating professionalism is expressed. The underlying message is that the hidden curriculum has a greater influence on the development of values, attitudes and behaviours. The hidden curriculum represents an inconsistency between what is taught and what in reality is learnt (Bennett *et al.*, 2004). Interactions and practices, particularly within the clinical environment, produce implicit messages about expected norms. These messages influence perceptions of role and behaviour (Stern, 2000) and may be positive or negative (Cruess and Cruess, 2006). However, medical educators appear to view the hidden curriculum in a negative manner that destabilises what has been learnt within the formal curriculum. Methods of evaluation / assessment reveal how the hidden curriculum undermines and erodes professionalism.

A seminal study is that of Feudtner *et al.* (1994). In surveying medical students' perceptions of their ethical environment, they exposed a climate of acceptance towards unethical behaviour. Witnessing unethical practices prompted similar behaviour and acceptance. Students reported acting unprofessionally to maintain the status quo and complied with instructions rather than question them, even when conscious of their incongruity. Although students reported feeling guilty, the lack of authority, pressure and desire to 'fit in' had prompted their actions. Building on the work of Feudtner

et al. (1994), Satterwhite *et al.* (2000) discovered that students do not necessarily recognise the deterioration of values. They illustrate how students had come to change their opinion about derogatory comments towards patients. By the 3rd and 4th year, students considered this to be acceptable practice at the same time reporting no change to their personal code of ethics.

Similarly Woloschuk *et al.* (2004) surveyed 3 cohorts of medical students at 3 points in time, using two Likert style scales; a known reliable tool (Attitudes Towards Social Issues in Medicine) and an in-house survey relating to medical skills, they attempted to measure attitudes towards expected professional behaviours. Multivariate analysis of the mean attitude scores indicated that although scores remained overall positive they had continually declined during a period of clinical education.

Criticisms of approaches taken to teach and assess professionalism

It is apparent that in the past medical education has been compartmentalised, with the formal, informal and hidden curriculum all seen as separate entities. Despite the attention given to highlighting the negative values and behaviours communicated through the hidden curriculum, educators have been criticised for counterbalancing the flaws of the hidden curriculum through teaching and assessment within the formal curriculum (Hafferty, 2006a, p.292; Cribb and Bignold, 1999). The approach taken by

the medical profession has shown little appreciation of the integrative nature of the curriculum's components, or the way students learn and interact with the environment. It has discounted important influential factors such as professional identity and the impact course structure and teaching methods have on developing professionalism.

The need for further development and research into appropriate teaching and assessment strategies is openly acknowledged (Hafferty, 2006a, p.292; Arnold, 2002). Educators are asked to consider methods of assessment which explore intrinsic attitudes towards professionalism and take into account context, conflict and resolution. Ethnographic, longitudinal and triangulated approaches are advocated, (Rees and Knight, 2007; Cribb and Bignold, 1999), as without these, an individual's orientation towards professionalism and the effects of educational approaches to learning cannot be realistically determined (Jha *et al.*, 2007). The validity of previous quantitative studies that have reported declining states of professionalism is questioned, as many data collection tools have been found to be unreliable (Jha *et al.*, 2007). The guidance and direction to other educators thus come through the observed inadequacies of the approaches previously taken. In designing methods to assess / evaluate professionalism it is evident that such criticisms need to be taken into account.

Transforming a lay person into a professional

It is often assumed that becoming a professional is a natural process, and that learning automatically translates into practice (Hafferty, 2006a, p.283). However, changing the way students think and act is complex and the ability to transform / transfer learning depends upon many intrinsic and extrinsic factors. It is possible for diminished professional standards to arise as a result of an unsuccessful transformation from a lay student into a professional.

Transformative learning theories

Mezirow (1997) identifies the course of transformation as a process in which changes occur with respect to personal frames of reference. During the transformative process students “*acquire a coherent body of experience – associations, concepts, values, feelings, and conditioned responses that define their life world*” (Mezirow, 1997, p.5). His theory is based on cognitive development and is founded on the constructivist principle that learning is created from prior knowledge and experiences (Cust, 1998, p.146). In order to adapt to new roles and responsibilities etc. previous frames of reference (habits of mind and points of view) need to be revised (Mezirow, 1997). Reinterpreted frames of reference subsequently become the foundation of our understanding, and provide a new perspective. This change in perspective is central to Mezirow’s theory. Critical reflection, experience, and discourse are essential mechanisms in the construction of new

perspectives and in the development of autonomous thinkers. Emphasis is placed on the critical reflection of personal assumptions, as these constrain perceptions and the ability to avert the ideas and opinions of others, which in due course affects the capacity to transform (Mezirow, 1997).

The importance of reflection

Definitions of reflective practice vary, however universal themes exist. Boyd and Fales (1983 cited in Kember *et al.*, 2001, p.11) define it as:

“... a process of internally examining and exploring an issue of concern, triggered by an experience, which creates and clarifies meaning in terms of self and which results in a changed conceptual perspective”.

Experiential models of reflection (e.g. Brockbank *et al.*, 2002a, p.11; Boud *et al.*, 1985b, p.36) use experience as the starting point and content for learning. Reflection is portrayed as a cyclical and staged process that is initiated by consciously returning to a problematic experience / issue.

The period of reconnaissance which follows allows for deeper processing of the new knowledge (Brockbank *et al.*, 2002b, p.20), as thoughts and feelings are consciously brought to the surface. By reflecting, students can critically explore the nature and rationale of their knowledge (Brockbank *et*

al., 2002a, p.10), integrate new knowledge within their existing conceptual framework, challenge or validate their values and affective state and uncover alternative perspectives (Boud *et al.*, 1985b, p.21). As a result, students develop knowledge of their practice and of themselves, why they think, feel or act in such a way and can justify the appropriateness of this within the context of practice. Ultimately this enables students to credit themselves with the knowledge such that it becomes part of their identity and evident within their behaviour (Boud *et al.*, 1985b, p.33). It is anticipated that the new insights generated from the process will be tested in practice; this creates a new experience which is subsequently reflected upon, thus continuing the cycle (Boud *et al.*, 1985b, p.35).

Reflection is often portrayed as an individual activity but to avoid self deception and a continual attachment to personal perspectives, engaging in discourse with others is critical for transformation (Clouder, 2000; Mezirow, 1997). The process of learning together enables students to gain alternative points of view and reach a common understanding (Brockbank *et al.*, 2002b, p.21). This makes learning a social process and in accordance with Vygotsky's *Zones of Proximal Development Theory*, (cited in Quay, 2003) knowledge and understanding become actively constructed through collaboration and support from more skilled reflectors. This process also develops metacognitive awareness, i.e. consciousness of what is expected and awareness of the steps to be taken in order to achieve these

expectations, which subsequently enables students to monitor their achievement (Kember *et al.*, 2001, p.14). Metacognitive awareness is considered a crucial factor in the transformative process (Brockbank *et al.*, 2002a, p.10).

Criticisms of Mezirow's theory

Mezirow's interpretation is challenged; Boyd (1991 cited Taylor, 1998, p.13) sees transformation from a psychosocial rather than cognitive perspective, a progressive journey of personal discovery in which intuitive and emotional awareness changes personality and identity. Boyd claims Mezirow's exclusion of psychosocial elements leaves people's actions vulnerable to unconscious forces. Freire (1970 cited in Redmond, 2004, p.19) takes a social and emancipatory view and extends Mezirow's concept beyond personal transformation to the transformation of society. He expresses that personal transformation should encompass a vision of one's place within society which allows people to take action against prejudice and oppression, which subsequently transforms society. Although reflection is a key concept Freire draws attention to the role of education in creating conditions for reflection (Redmond, 2004, p.19).

The differing theories are not as contradictory as they might first appear since they have common elements which unite them e.g. critical reflection, discourse, emancipation, and autonomy (Grabove, 1997). It is considered

that variances merely amount to a different emphasis and as such transformation is a layered concept (with each layer being explored by a particular theorist), with learners moving between the layers at different points in time (Grabove, 1997). This suggests that no one theory predominates, thus changes to cognitive and affective states and personal identity can each be regarded as significant to the transformative learning process.

Psychosocial dimensions of education

The theories of transformation are idealistic concepts that assume critical reflection ultimately leads to transformation, however they fail to take account of the psycho-social dimensions of education and the environment in which learning occurs (Taylor, 1998, p.60). Argyris and Schön's model (1974 cited in Brockbank *et al.*, 2002a, p.12-14) observes reflection on two levels. Engagement in single loop reflective learning serves to simply bring about improvement in day to day skills, unlike double loop learning which goes beyond immediate change in practice and questions personal values that underpin practice in a way that transforms perspectives. The shift from single to double loop reflective learning is influenced by several personal and organisational factors. Students, educators and the experience all influence aspects of the transformative process (Grabove, 1997); this presents challenges in bringing together the main requirements for the transformation of a lay person into a professional.

It is often assumed that students possess the ability to critically reflect, (Merriam, 2004), are at similar stages of personal development and can develop at the pace the curriculum expects (Wear and Castellani, 2000). Mezirow's theory demands mature cognitive development which Merriam (2004) suggests few adults possess. Since several other skills (such as the ability to conceptualise) are vital and simultaneously need to be developed in order to make the process effective (Boud *et al.*, 1985a, p.12), it is unlikely all of these will or can be concurrently developed.

Aside from personal capability and skill development, students must also want to transform and actively engage in the process of becoming a professional (Light and Cox, 2001, p.56). A genuine desire to learn, interest in the subject and a sense of its value provides a basis for adjustment (Macaulay, 2000, p.5-6). The reality is that states of motivation, levels of self efficacy, personal goals and perceptions of learning will differ (Macaulay, 2000, p6). Constricted and negative dispositions about oneself and ones learning objectives constrains capability and limits chances to make the most of the learning opportunities available (Boud *et al.*, 1985b, p.29). Not all students will intend to interrelate and understand the subject in a meaningful way. Surface learning is not uncommon; this limits the capacity for developing meaning and understanding due to an uncritical and unreflective outlook (Macaulay, 2000, p.11).

There can be reluctance to engage in participatory teaching methods, and often there is resistance to change and difficulty in incorporating new concepts into existing frames of reference (Rogers, 2002, p.239-240), particularly for mature students (Lister, 2000, p.164). The desire to transform does not necessarily generate action; there are many internal and external barriers to reflection. For example, the negative emotions that may surface during the process can obstruct a continued commitment towards reflection (Boud and Walker, 1993, p.80). Whilst new knowledge and understanding may be espoused, actions do not necessarily match (Argyris and Schön, 1974 cited in Redmond, 2004, p.42). This is because commitment to actions requires emotional synchronization which comes through the reconstruction of self and development of identity (Light and Cox, 2001, p.58-60).

The differing and uncertain composition of the student body places an onus on educators to create the right opportunities and conditions for transformation. The extent to which the reflective process is understood and modelled and how learning strategies are promoted are significant (Brockbank and McGill, 1998, p.63-64). Other factors like the physical environment, the relationship educators have with their students, the strength of collaboration and degree of trust between group members also have an impact, serving to either enhance or undermine the transformative process (Cranton, 2002).

Simulated learning experiences

Experience provides the foundation for learning through which meaning is constructed. Students in radiography have the opportunity to gain clinical experience, however an initial year long academic component precedes the clinical component. Consequently in the early stages of the course students are being asked to utilise prior knowledge and abstract information and apply this to what they anticipate to be their practice rather than what they know to be their practice. Lack of a conscious scaffold may limit understanding and generate misconceptions about professional expectations (Cust, 1998, p.150).

The first year of the course is structured towards delivering scientific and practice based theory. In the first term radiography students are taught alongside students from other healthcare disciplines. They are taught a broad range of medically related topics which includes ethics, patient management and critical thinking skills through lectures and small group work. The latter half of the first year is devoted to radiography specific modules. The scarcity of resources and increasing student numbers means that the delivery of modules is largely through lectures, with further support offered through an electronic learning management system.

Albeit limited, in the first year students are exposed to case / problem based learning, role play, simulated patient interactions and practice opportunities

within a model x-ray room; approaches which are considered to encourage problem solving, reflection, critical analysis, and metacognitive development (Cranton, 2002). Such methods grant a higher level of concreteness (Coles, 1998, p.74), and ensuing discussion provides opportunities for social construction of meaning and broadens perspectives as students learn with and from others (Brockbank *et al.*, 2002a, p.6). Whilst they provide the relevant ingredients for learning, they may be a weak basis for developing professionalism for a number of reasons.

Although they simulate and illustrate potential experiences, students only learn in relation to the cases presented (Coles, 1998, p.77), situations presented are simplistic and arguably fail to portray the complexity of practice (Kember *et al.*, 2001, p.17). Professionalism thus becomes bound within a particular context and relies upon an ability to transfer knowledge from what is a 'planned' experience within an academic setting to an unplanned experience within a clinical setting. This lack of commonality between the two experiences is considered to inhibit the transfer of knowledge (Eraut, 1994, p.33). Furthermore reassigning knowledge from one situation to another takes time and only comes through exposure to numerous and different experiences (Rogers, 2002, p.133).

Learning is more meaningful when it is derived from personal experience (Kolb, 1984 cited in Coles, 1998, p.69). The hypothetical nature of the

experiences potentially filters out essential elements of the reflective process. Emotional triggers such as trauma and excitement are absent which restricts progression with the cycle and subsequently fails to stimulate self awareness of personal values, attitudes and behaviours (Boud *et al.*, 1985b, p.28-29). Consequently these are likely to remain unexplored prior to practice.

Reflection relies upon discourse to validate understanding and generate meaning (Mezirow, 1997). The lengthy period of time required for discussion is not available given the need to meet other curricula demands. This impacts upon the development of relationships, trust, and on opportunities to freely participate (Mezirow, 1997). Furthermore it prompts a surface approach and inhibits commitment to an inquiry into personal assumptions, making the activity worthless (Brockbank *et al.*, 2002b, p.26).

Professionalism is based within actions, and transfer requires understanding and opportunities to apply newly constructed knowledge in practice (Macaulay, 2000, p.17). Simulated activities do not engage the student with the whole reflective cycle and what is gained through reflection is lost (Boud *et al.*, 1985b, p.35). Revised intentions cannot immediately be put into practice, further consolidated or reflected upon. This means that students can only imagine the consequence of their actions rather than being aware of the outcome of their actions through the response they receive (Johns

and Freshwater, 1998, p.12). Self monitoring is sidestepped and learning does not occur (Rogers, 2002, p.107).

Professionalism as a *threshold concept*

Professionalism corresponds to what Meyer and Land (2003, p.1) describe as a *threshold concept*, which when grasped alters our thinking and approach to the interpretation and application of the concept. Like many threshold concepts, professionalism is characterised by what Perkins (1999 cited in Meyer and Land, 2003, p.5) describes as *troublesome knowledge*, i.e. that which is unfamiliar in both composition and application.

It is easy to see why professionalism as a concept may be troublesome and difficult to relate to. Not only is it counter-intuitive, it has its own language, and requires a non-ritualised response (Perkins, 1999 cited in Meyer and Land, 2003, p.5-6). Its composition of several ill-defined concepts adds to its complexity and until students are familiar with these, they are unlikely to conceive professionalism in its entirety. Its multidimensional nature takes time to internalise as the concept has to be received, responded to, valued, organised and then characterised (Nichols, 2005). Since this needs to be synchronized with the concept of reflection which is concurrently being developed then the process of internalisation may be slow and unlikely to happen within the given timeframe.

Ineffective boundary-crossing

The nature of the concept and shortcomings of the programme and its educational strategies mean that at the point of entry to clinical practice radiography students may have insufficient knowledge and understanding of professionalism and a limited capacity to critically reflect, which are seen as essential pre-placement requirements (Eyler, 2002). The move into clinical practice represents a boundary-crossing into unfamiliar territory (Tuomi-Gröhn *et al.*, 2003, p.4). It is thought that such “*cognitive retooling*” connects the familiar with the unfamiliar, helping students embrace the change of learning environment and overcome the dilemmas they are likely to encounter (Tuomi-Gröhn *et al.*, 2003, p.4). Knowledge and reflection therefore have significant implications with respect to transformation (Tuomi-Gröhn and Engeström, 2003, p.22-23). Deficiencies within the formal curriculum (as outlined) are likely to suppress the exploration of assumptions and positive reception of professional expectations. As a consequence, students may well continue to incorporate new information into existing frameworks (Eyler, 2002), be unresponsive to the need to modify and regulate behaviour and accept without criticism the actions and opinion of others. This of course diminishes the development of professionalism.

Situated Learning

Theories of transformation are criticised for placing too much emphasis on transformation being a rational and cognitive event. Although cognitive development has a role in transformation it is not as “*fundamental and ubiquitous*” as is claimed (Tuomi-Gröhn and Engeström, 2003, p.26).

Situated cognition is considered more influential in transforming students into professionals, and accordingly situated learning theorists reject the view that learning is an individual cognitive process and give prominence to the contextual nature of learning (Quay, 2003).

Sceptical that knowledge gained through instruction will become entrenched in practice, situated learning theorists focus on knowledge development as a result of direct participation within the work place environment (Quay, 2003). The premise that ‘learning by doing’ consolidates knowledge and skills is extended. Social interactions that transpire through ‘doing’ are considered to be an inseparable component to learning (Lave and Wenger, 1991, p.35). Emphasis is placed upon the working community as a significant contributor in the construction of knowledge rather than the individual alone (Quay, 2003). Jean Lave and Etienne Wenger are renowned for their work in this field. Their concepts of *Legitimate Peripheral Participation* and *Communities of Practice* offer insight into how the coalescent nature of participation and interaction within a community helps

shape actions, knowledge and understanding of what it means to be a professional.

Positioning learners within a work place environment begins a process of socialisation which aims to progressively develop practical skills, attitudes and behaviour and move students from being on the outside of a community to become an integral member of the community (Lave and Wenger, 1991, p.29). Consistent with the *Cognitive Apprenticeship* model as described by Seely Brown *et al.* (1989), it is considered an effective means to bring about the transfer of knowledge and the transformation of a lay person into a professional.

The clinical environment encompasses many features critical for transformation. In accordance with Mezirow's theory (1997) it offers opportunities for experience, critical reflection and discourse. Although such features are identifiable within academic components of the course, their capacity to bring about transformation is questionable. Ostensibly the clinical environment subjugates the weakness of the academic programme in developing professionalism. The clinical components within the radiography programme are structured such that students obtain repeated exposure to a range of procedures and imaging modalities. This permits the integration of academic knowledge and development of practical

knowledge, skills and responsibility to the level expected at the point of qualification.

Learning through participation

The observation of others, the accumulation of personal experience and a succession of unfolding events reinforces and generates different types of knowledge relating to practice (Billett, 1999, p.152). Engagement in activities offers a sense of purpose to their learning, enabling students to use occupational tools, obtain knowledge of systems and procedures, and develop practical and interpersonal skills through working with patients (Lave and Wenger, 1991, p.101). The holistic experience acts as an agent for transformation; the actuality of practice heightens practical relevance (Eraut, 2004) and grants greater depth of understanding by helping to make sense of abstract theory (McAllister, 1997, p.8). Thus as students advance their knowledge and practice, deal with complex situations, meet expectations and standards etc. personal construction of meaning is stimulated, as they utilise their experience to assemble ideas about the significance of their role and related behaviour (Eraut, 2004).

For radiography students, gaining experience takes place amongst members of the radiographic community who, in the course of practice, act as role models demonstrating through their actions what it is to be a professional (Kenny *et al.*, 2003). Role models are central to influencing

behaviour and standards. Although not all role models are good and credible; exposure to anti-role models is potentially beneficial, helping students create the image of an ideal professional to which they can aspire (Kenny *et al.*, 2003).

Gaining experience alongside employed staff means that learning becomes a shared experience allowing students to construct a conceptual understanding of professionalism through participation, observation and discussion with “*old timers*” (Lave and Wenger, 1991, p.49). Members within this community of practice are united by a common purpose, shared activities, repertoire and rules (Lave and Wenger, 1991, p.53). The meaning of activities, how to behave etc. within the context of practice are thought to be subtly negotiated by former and current members through the procedures, language and social interactions that emerge in practice (Quay, 2003). What is and isn’t important, what is said or left unsaid, how tasks are approached etc. are all determined this way. This serves as the foundation of a culture which is characterised by the accordant actions, feelings, behaviour and values of its members (Wenger, 1998, p.47).

Integration exposes students to explicit and implicit knowledge imparted by the community and its culture which is often impenetrable to those on the outside of the community and which could not be acquired by an individual alone (Quay, 2003). Integration is considered beneficial to the

transformative process, it creates “*a place of possibility*”; the chance to deepen learning experiences through the connective educational relationship formed between the learner and their supervisor (Gillespie, 2005, p.212). Connections that arise through trust, respect and mutuality provide a firm foundation for learning and honest discourse (Gillespie, 2005).

Conversations and stories of events provide insight into responsibilities and values (Johansson *et al.*, 2006; Stern, 2000) and bring opportunities to question and analyse situations which facilitates exploration of personal perspectives and those of others (Eraut, 2004). When students talk about what they do, they indirectly think about their role and responsibilities (Kenny *et al.*, 2003). In using the customary language, students connect with the history and culture of radiography (Lave and Wenger, 1991, p.95 & p.109), which strengthens occupational identity and positioning within the group (Lave and Wenger, 1991, p.53). In addition, connective relationships reinforce humanistic values and have a positive impact on care (Johansson *et al.*, 2006). The values which underpin the educational relationship become embedded within practice; this intensifies the relationship students have with patients (Bégat and Severinsson, 2006). It is therefore possible for students to establish the meaning of professionalism through the actual educational relationship that develops as well as from the content and language used in the conversations that consequently materialise.

Professional development through collaborative reflection

Both experience and interactions create opportunities for critical reflection which aids the internalisation of cultural knowledge, practices and behavioural norms. Events that arise in practice provide a point for reflection and their lived nature makes them more meaningful and receptive to conscious consideration (Eraut, 2004). Unlike the academic component of the course, clinical placement facilitates continuation of the cyclical process, through which meaning can be constantly sought. Due to their extraordinary nature and complexity, events often raise emotions which unexpectedly provoke the process of reflection (Boud *et al.*, 1985b, p.28). In this respect reflection results from and is driven by reality. The scope for deliberative discussion in a collaborative and group setting enhances the reflective experience as differing viewpoints can be reconciled by the student (Brockbank *et al.*, 2002b, p.19). There is scope for students to question experiences and in light of this and the knowledge gained translate ideas into action, the consequences of which provides a foundation for further reflection (Rogers, 2002, p.108).

Professional development by means of a professional identity

A significant and powerful consequence of socialisation is that it generates professional identity (Lave and Wenger, 1991, p.53), whereby students 'feel' they are radiographers rather than simply carrying out the work of a radiographer (Öhlén and Segesten, 1998). This is an important realization

fundamental to the development and continuation of professionalism. Several authors theorise as to how identity transpires (e.g. Beach, 2003; MacIntosh, 2003; Wenger, 1998). In general it is seen as an evolving, consequential transition that manifests through the engagement and investment of self in the course of activities and interactions (Beach, 2003, p.42; Wenger, 1998, p.153 & p.192).

The intertwining nature of activities and interactions inform and transform each other (Wenger, 1998, p.96 & p.151). Through internalisation new meanings are constructed as is the concept of self (Beach, 2003, p.42). As students bond with the community and move towards adopting its practices and behavioural norms, a new level of understanding is reached such that students come to see themselves in the context of a practitioner rather than a student. In this respect, students have “*become someone or something new*” (Beach, 2003, p.41). This change in perspective reinforces ways of thinking and behaving (Wenger, 1998, p.153). Developing an identity is significant; it is through this that commitment to participate and embrace the role along with its standards and expectations transpires (Wenger, 1998, p.295).

Appraising professional development in the workplace

Learning in the workplace is seemingly more influential in its ability to transform students into professionals. The premise for this is its capacity to bring contextual coherence and connect together a number of learning processes (Tuomi-Gröhn and Engeström, 2003, p.27) which alters the propensity of the student to relate to professional expectations. In addition it exploits affective aspects, where the subject of professionalism can be more easily confronted and comprehended (Nichols, 2005). Exposure to the complexity and totality of practice thus integrates Boyd's perspective (cited in Taylor, 1998, p.14) and extends transformation beyond cognitive change to that of psychosocial development, thus generating an intransient sense of professionalism.

Situated learning theories imply that clinical placements will aid students understanding of what it is to be and act as a professional, and assume changes in behaviour and identity will result. However, this cannot be taken for granted as workplace climates differ (Eraut, 2004). In order to secure the aims of *Legitimate Peripheral Participation* and help students construct an understanding of professionalism and assist them to make such practice their own, a number of key elements are critical. There is much reliance upon a supportive climate which allows active involvement, acceptance as a member of the community, access to a wide range of experiences and

resources, role models, peer support, opportunities for discourse, reflection and feedback.

Factors influencing the development of professionalism

Influential studies into the dynamics of becoming a healthcare professional (e.g. Melia, 1987; Simpson *et al.*, 1979; Bucher and Stelling, 1977) indicate that several features of the clinical environment determine the type of professional being developed. The relationship between structural and situation variables fluctuate such that professionalism is not a definite outcome. Recent literature concurs with earlier work (e.g. Maben *et al.*, 2007) and makes clear that aspects within the clinical environment are likely to impede the development of professionalism amongst students.

The nature of activities and status

The type of activity students engage in determines what is learnt and several professional responsibilities manifest through engaging in tasks of increased responsibility. It is possible students will fail to gain experience in all aspects of radiographic practice. Their apparent lack of status, short placement periods, and the conflicting role of learner and worker serve to compromise opportunities to engage in practice activities (Melia, 1987, p.2 & p.5). Students' low level hierarchical status within the NHS and in the eyes of the patient makes it difficult for them to fully replicate role and initiate actions thus confining the degree of responsibility and authority to

act independently (Melia, 1987, p.100). This limits autonomy, which consequently averts responsibility for quality and accountability (Burkhardt and Nathaniel, 2002, p.145), and the capacity for exercising professional judgement (Melia, 1987, p.51) and self restraint, which are at the heart of professional expectations (Jarvis, 1983, p.43). In addition it shelters students from having to respond and commit to wider roles such as policy formation and enhancement of care, thus permitting a “*carefree existence*” (Melia, 1987, p.119).

NHS cutbacks mean that many departments are overstretched and attention is increasingly turned to productivity and efficiency (Bloor and Maynard, 2006). This may change how the role of the student is perceived and potentially affects breadth of experience. It is not uncommon for students to be regarded as an additional set of hands expected to “*pull their weight*” (Melia, 1987, p.15). This often means students are forced to take on roles beyond their level of experience or are consigned to nominal tasks (Ashworth and Saxton, 1992, p.56).

Unsupervised practice, a task centred focus and expectations for swiftness, reduce the encumbrance on imaging staff (Lave and Wenger, 1991, p.111) and calls for only immediate learning needs to be addressed (Melia, 1987, p.173). This regrettably forces students to act intuitively and without rationale, which consequently inhibits self awareness, reflection and meta-

cognitive development (Eraut, 2004). This in turn may leave students oblivious to bad habits, and poor and unsafe practice (Stuart, 2007, p.3), which ultimately reduces standards of care.

Superficial and partial involvement has implications with respect to personal development, understanding of role and its professional expectations.

Subsidiary placement and routine low level work is unchallenging and quashes attraction towards the profession (Simpson *et al.*, 1979, p.42). It reduces the development of competence, confidence, self efficacy and commitment which are vital to the development of identity (Melia, 1987, p.14; Bucher and Stelling, 1977, p.214) as well as the capacity to reflect and make judgements on performance (Bucher and Stelling, 1977, p.274 & p.279).

The quality of education and training

Clinical supervision is significant to professional development. Active approaches towards supervisory education and training within radiography are only just beginning to emerge (CoR, 2006). Certification to supervise radiography students is not mandatory and radiographers within imaging departments perform their own role and that of supervisor additionally and simultaneously. This results in varying expertise, levels of guidance, differing priorities and supervisory styles which can affect the quality of teaching and learning (Bruijn *et al.*, 2006).

Not all staff are aware of their supervisory role, expected student competencies (Daelmans *et al.*, 2006) or how to deal with inadequate performance (Duffy, 2003, p.25). Time pressures bring the potential to devalue teaching as a legitimate activity and for unstructured and superficial teaching approaches to be adopted (Ashworth and Saxton, 1992, p.56). This means that students are left without guidance towards and awareness of what learning is to be achieved, making them ill-equipped to respond.

Learning to be a professional comes through communicative as well as instrumental learning (Mezirow, 1997). This feature of the supervisory process is considered inadequate (Bruijn *et al.*, 2006). Collective knowledge arising from activity is often invisible and not consciously shared.

Supervisory staff are criticised for such silent modelling as they fail to outline expectations or articulate and justify their actions to students (Kenny *et al.*, 2003). Silent modelling does not necessarily translate into understanding (Stern, 2000), and brings the potential for students to get the wrong impression of the significance of particular aspects of professional practice. Furthermore it abates the examination of decision making processes, values and attitudes, as these also fail to be portrayed (Kenny *et al.*, 2003).

It is known that supervisory qualities and practices are often contrary to what is considered effective. In order to enhance supervisory practice the University supplies handbooks and offers a one day training course or a

masters level module in assessing and supervising. The purpose of this is to intensify educational support so that students are challenged to extend their capabilities, develop competence, process dilemmas, respond to the demands of practice and meet professional expectations. However there is no guarantee that handbooks are read and course attendance is voluntary which moderates the input the University has into assuring the quality of supervision.

Acceptance and integration into the community

The experiential learning outcomes are reliant on the relationship between the supervisor and the student (Eraut, 2004). Not all staff are keen to educate students (van Ooijen, 2000, p.52). This negatively impacts on learning as it potentially affects levels of guidance, participation, and responsiveness to requests for feedback and assistance. Moreover, it portrays the idea that abandoning professional responsibility is acceptable. Becoming a professional involves personal change through reflection; this generates the need for a close and supportive relationship (Gillespie, 2005). Radiography placements are fairly transient in nature and building close relationships with staff and other students is unlikely to be easy due to the brief placements and constant movement through departments where permanent and locum staff rotate. A brief membership may mean that students are never fully accepted which affects level of integration and commitment to the role (Eraut, 2004; Melia, 1987, p.127). It is questionable

whether short rotations will allow enough time for students to establish a close enough relationship and build trust and rapport with staff and peers such that they feel comfortable in negotiating their learning needs and openly expressing anxieties and examining perspectives which are vital for self awareness and development (Gillespie, 2005).

Entry into clinical practice means that students are confronted with new experiences. How they adjust has a profound effect upon development. Research exploring clinical experiences within nursing showed that on entry students often received a hostile welcome and were humiliated by staff (Hoel *et al.*, 2007; Windsor, 1987). Feeling pressurised to 'fit in' and impress staff is not uncommon (Feudtner *et al.*, 1994). The need to 'survive' and gain membership to the community is thought to undermine the development of professional values (Levett-Jones *et al.*, 2007). Coercion due to the inequality of the relationship, seemingly forces students to renounce their existing professional values and act in accordance with perceived expectations (Levett-Jones *et al.*, 2007; Melia, 1987, p.169). Furthermore, exposure to frequent incidences of unprofessional behaviour generates tolerance (Hoel *et al.*, 2007), which leads to acceptance and an unconscious change in students' behaviour and character (Satterwhite *et al.*, 2000), such that they replicate rather than contest unprofessional actions and behaviour (Levett-Jones *et al.*, 2007; Feudtner *et al.*, 1994).

Studies show that demands for speed and efficiency bring similar patterns of behaviour as professional ideals become compromised. Covert rules to work rather than care forced practitioners to spend less time interacting with patients (Lewis *et al.*, 2008; Maben *et al.*, 2007; Kelly, 1998). In order to preserve moral integrity nurses experienced a period of moral distress which gave rise to a series of self protecting strategies (Kelly, 1998). Nurses often changed their values in line with the covert rules and convinced themselves their actions and values were justified (Maben *et al.*, 2007; Kelly, 1998).

Within healthcare there is reluctance to 'whistleblow' and challenge behaviour. Students particularly fear the repercussions this would have for their education and future career (Goldie *et al.*, 2003). The impetus to challenge has been linked to personal belief systems, and more prevalent amongst those who hold a strong sense of patient advocacy (Goldie *et al.*, 2003; Ahern and McDonald, 2002). This affirms the potential for radiography students to be exposed to and indeed assimilate deviant practices and inappropriate values rather than the professional comportments educators are expecting to be inculcated. Moreover it highlights that fitting in potentially diminishes the importance of values associated with quality and care as well as the capacity to self regulate.

Personal adjustment to role

Reported to a lesser extent is how students adjust to the role. Transitional role theorists Ashforth and Saks (2000) observe how each student enters practice with a different set of expectations. When these are not met, students experience a 'reality shock' which prompts a number of behavioural responses and can change patterns of learning. Inexperience and vague expectations may provoke compliance and the adoption of a passive approach to learning. However, those with higher expectations often seek to accommodate personal preference, which often leads to a strategic course of learning (Ashforth and Saks, 2000).

The work of Ewens (1998 cited in Ewens, 2003) shows that before entry, nursing students conceptualised themselves in specific roles and held firm views about their intended role, which remained unchanged throughout their training. Payne (2006) notes how identity is ambiguous and political in environments such as health and social care where boundaries of work and levels of expertise overlap. The consequential fragmentation of disciplines brings ambiguity, and adopting a specific and desired identity is by way of resistance to other identities. Radiographic discourse analysis reveals distinct philosophies of work and a dual identity where mastery of technology (illustrated through mechanistic activity and a biophysical perception of the patient) sits alongside humanistic and protective 'nursing' work (Niemi and Paasivaara, 2007). O'Connor (1996) raises concern that

technological advancements increase the potential for practices and allegiances to become more divergent, unbalancing the technological and patient centred symmetry that needs to exist in practice.

The preceding discussion highlights that students themselves may influence the nature of their socialisation and learning outcomes. How students respond to their environment determines how they connect with aspects of practice, which is likely to affect understanding of role, behaviour and values as well as identity. It has been shown that socialisation brings the potential for diminished association with patients and a professional perspective based on technological standards and substandard organisational values rather than the principled and multifaceted value based perspective that is expected. Were such a state to exist then this would ultimately damage the foundations of professional practice and threaten professional status.

The capacity and opportunity for reflection

Frankford *et al.* (2000) consider that with time, encouragement, and collegiality in the context of a sincere and safe environment, institutional processes of reflection can be enhanced such that they connect together the elements of professionalism, which is essential for being a true professional (Jarvis, 1983, p.79). To encourage understanding of practice, critical analysis and self appraisal, students are expected each week to complete a reflective report. Before entering the clinical environment

students have had little experience of reflective writing. Reflective writing is an aspect which is neglected and negatively viewed. Students often make descriptive and superficial entries owing to a lack of appreciation for its relevance, or unwillingness to be frank (Smith and Jack, 2005). Focusing on the minutiae rather than the wider aspects of practice is also common (Clouder, 2000). Even when experience and analysis have been well documented, what the student can learn by this method alone is limited and requires the involvement and support of other people (Boud *et al.*, 1985b, p.36) in order to sustain learning and commitment to professionalism.

It is however likely that environmental influences make reflective practice an inconsistent and infrequent part of the practice experience for student radiographers. Value is placed on "*getting the work done*" in a timely fashion (Melia, 1987, p.15 & p.43) and time allocated within the working day to such an activity is likely to be minimal and may account for why interaction is focused on competence rather than development of personal philosophies as Marrow and Tatum (1994) illustrate. There is criticism that reflection is infrequently modelled and not a shared process. Opportunities for reflection are stifled because discussions which expose personal opinion or challenge the views of others are often discouraged by radiography staff (Sim *et al.*, 2003). Differing placement locations also limits the possibility of collective reflection with peers.

This has considerable consequences for transformation since it places limitations on accessing the ideas and experiences of others, which are significant in helping to broaden perspectives and determine acceptable standards of practice and behaviour. This provides students with the impetus to assess their own development, challenge personal philosophies and ways of working which makes learning an active process. If reflective practice is not encouraged and supported, then there is little possibility of students considering how they think and act (Brockbank *et al.*, 2002b, p.20). Attempts to raise self awareness, help students restructure priorities, and derive new meanings may be unsuccessful.

Opportunities to gain feedback on performance

Supervising staff carry out summative assessments and document students' performance against a broad range of competencies throughout the placement period and provide progressive feedback. This is a vital aspect of the learning process and in theory provides a point for reflection and future learning. However, such assessment practices are criticised for their lack of reliability and scope for bias (Stuart, 2007, p.19-22). This calls to question their usefulness as a tool to aid the development of professionalism, particularly as some intangible and central aspects of professionalism such as life long learning cannot be assessed.

Feedback on development is often inadequate (Chur-Hansen and McLean, 2006). Narrative remarks lack negative statements (Frohna and Stern, 2005). Duffy's (2003, p.32 & p.53) investigation into mentors' experiences of assessment exposed that fear of reprisal and confrontation as well as service pressures made staff prone to giving students 'the benefit of their doubt'.

Feedback is significant in that it provides insight into performance, rewards efforts, acknowledges contribution to practice, and reinforces knowledge and behaviour which helps develop confidence, boosts self esteem and enhances relationships (Glover, 2000), thus furthering identity and integration. Furthermore it draws attention to expected standards, areas for improvement, and allows students to identify learning needs and determine learning strategies (Glover, 2000).

The absence of constructive and honest feedback raises a number of important issues. It leaves students unclear about progress and levels of performance (Daelmans *et al.*, 2006). This means they erroneously assume they are 'doing ok' (Bucher and Stelling, 1977, p.273), which sanctions the continuation of poor practice and inappropriate behaviour (Stuart, 2007, p.3). As a consequence students will lack awareness of expectations and a chance for remediation. Responsibility for learning is no longer a joint venture as the emphasis shifts towards students relying upon their own

evaluations (Bucher and Stelling, 1977, p.170 & p.175), which may be deceptive (Ginsburg *et al.*, 2000).

Feedback acts as a basis for reflection and self assessment (Glover, 2000); any deficiencies hamper the development of critical thinking and a self regulatory capacity. This is intensified when opportunities for a two-way discussion is also absent. Regrettably this juncture for guided self-reflection and discussion on practice is lost, as is the scope for unearthing students' levels of self awareness, perceptions of their development and the values they hold (Stuart, 2007, p.188). Within radiography the need for regular and comprehensive feedback is all the more important. Transient encounters with several supervisors raises the likelihood of students being unable to attain professional orientation, as inadequate feedback leaves them unaware and in danger of errant behaviour (Papadakis *et al.*, 1999). Alarminglly there is the possibility of unprofessional behaviour going unrecorded / unnoticed. Consequently students can 'slip through the net' which reduces quality of care and the reputation of radiography as a profession with creditable values and the ability for self regulation.

Re-appraising professional development in the workplace

Outwardly the clinical environment incorporates all the requisite factors for developing professionalism, but seemingly there is no guarantee that clinical education succeeds in developing it. Developmental and transformative theories emphasize reliance upon a number of key factors being coherently interrelated and embodied in practice such that they change the relationship between the student and their activities (Tuömi-Gröhn and Engeström, 2003, p.27). Evidence suggests such expectations may not be accomplished. Integration into the community is not absolute, appropriate learning strategies are not fully exploited and clinical and supervisory practices often oppose the ethos of professionalism and convey messages contrary to formal teachings.

Undoubtedly learning occurs but the precise nature of what is learnt and how is considered hard to judge. This is because the practice of the community creates the learning experiences and its potential curriculum; collectively members develop a view about the nature of practice and what needs to be learnt (Lave and Wenger, 1991, p.93). Each student radiographer will be exposed to different NHS Trusts, encounter different experiences and a different curriculum. Enclosed is a hidden curriculum which manifests through the implicit expressions of values, behaviours, and identity (Coulehan, 2005) and because cultural influences are such, some

values are enhanced whilst others may be ignored or overtly inhibited (Stern, 2000).

This serves to illustrate that radiography educators are misplaced in their belief and reliance on the clinical environment to develop students as professionals. Coupled with the acknowledgement that the current formal curriculum is also potentially weak in this respect, it cannot be assumed that perceptions of professionalism will be shaped consistently and in a full or positive way. Indeed there is a strong possibility that at the point of qualification, understanding of the concept and a robust identity may not be developed.

Supporting and influencing the development of professionalism

Unquestionably the outcome is largely influenced by the features, structure and pedagogy of the programme. The educational framework generates the opportunity to secure radiography as a profession and assure continuation of its ideology (Richardson *et al.*, 2002). Consequently radiography educators must take accountably for the manner in which successive generations of radiographers are educated (Fish and Coles, 2005, p.47) and endeavour to enhance the quality of the curriculum and its provision in order to meet such obligations (QAA, 2001). For radiography educators this means developing congruent academic and clinical educational practices which support and influence the development of professionalism. The

additional challenge is that professional development partially occurs within external institutions (NHS hospitals) where educators have little control or influence over its hidden curriculum.

Hilton (2004) suggests that professionalism arises from the amount of interaction between positive features of the clinical experience (attainment) and the negative (attrition). How students resolve this divergence and the conflict between what is made explicit and what remains tacit is thought to be central to the extent to which identity and professionalism is shaped (Coulehan, 2005; Hilton, 2004). Evidently educators must work to exploit the positive and lessen negative aspects if professionalism is to be cultivated. Hilton (2004) perceives great merit in developing students' capacity for reflection as a means of managing discrepancies and upholding professional standards. Clearly there is value in adopting such an approach if introduced in an appropriate way; however, this is not a definitive solution. Success depends on the continuation of reflection in the clinical environment. In different environments students do not automatically utilise the same learning strategies and therefore may fail to process knowledge in this way (Ireson *et al.*, 1999, p.218). Moreover professionalism is a threshold concept; without an ensconced knowledge base it is questionable that the employment of reflection alone would generate meaning and bring about development and transformation.

A lack of understanding is thought to prevent transformation. It is only when each element of the concept is understood that reflection can be used as a mechanism to promote transformation (Tuömi-Gröhn and Engeström, 2003, p.29). Failure to understand leaves students in a state of *liminality*, whereby understanding is superficial, lacks validity and generates uncertainty regarding identity and underlying values. Students become 'stuck' which leaves them vulnerable to mimicry (Meyer and Land, 2003, p.10), abandoning their own views, accepting and replicating inappropriate behaviours and less receptive to ways of thinking and practicing as a professional (Coulehan, 2005).

Davydov's (1988 cited in Tuömi-Gröhn and Engeström, 2003, p.29) concept of learning activity is underpinned by the notion of theoretical thinking. In order for knowledge to act as a guiding principle, theoretical generalisations must be formed. This requires students to analyse the theory and identify its relationships and make connections to reality or systems of work. What follows are "*germ cells*" which direct actions and enable further analysis (Tuömi-Gröhn and Engeström, 2003, p.29). The assertion is that students must have an understanding of the knowledge in order to be able to use and integrate this into their thinking (Davies, 2006, p.75-76). What ensues is thought to heighten their affective state and the capacity for self regulation (Efklides, 2006, p.60). Together the knowledge and emotional responsiveness generate an awareness of practice demands and a capacity

to manage conflict, enabling them to examine and regulate their learning and practice in accordance with professional requirements (Efklides, 2006, p.64).

Establishing the research question and investigative approach

The work of learning theorists and researchers points towards the need for a curriculum which enhances knowledge, reflection, cognitive ability and self-direction in order to support students throughout the transformative process and to deal with the complex dilemmas they will continue to encounter in practice once qualified. In building such a curriculum attention needs to be paid to the criticisms and perceived failings of earlier approaches to teaching professionalism.

Transformation is complex, for radiography students this begins within an academic environment and continues within a clinical environment and this brings a specific set of challenges. The trend towards revising the formal curriculum is criticised. Goldstein *et al.* (2006) metaphorically describe professionalism as an ecosystem which warrants attention at all levels. They advocate that if meaningful changes are to be effective in aligning diverse student opinion and developing harmonized values and behaviours a dynamic approach is required (Goldstein *et al.*, 2006). Presumably one which is evidence based and gives consideration to the effectiveness of the clinical components in constructing identity, knowledge and shaping

attitudes, and creates unification between the formal, informal and hidden curriculum in order to strengthen rather than undermine the development of professionalism (Stephenson *et al.*, 2001). If the curriculum is to function as an agent for change and development it warrants an approach similar to Griffiths and Guile's (1999, p.168) *Connective Model* which acknowledges boundary crossing and situated learning and incorporates theory and reflexivity, enabling theory and concepts to be critically considered from an academic and work based perspective.

In this way developing a curriculum which edifies professionalism goes beyond additional content and the adoption of fashionable learning strategies, as these do little to develop a deep understanding and are seemingly ineffective in countering the effects of the hidden curriculum (Barnett and Hallam, 1999, p.145). Such an approach gives greater attention to the context of learning, i.e. students' clinical experiences and the environment within which they learn (Griffiths and Guile, 1999, p.170).

Ireson *et al.* (1999, p.222) emphasise the need for educators to be "*architects rather than bricklayers of learning*". This requires innovation and generates the need to undertake primary research at a local level, in order to make the process of learning and teaching more effective (Fish and Coles, 2005, p.29). A rudimentary enquiry is necessary to establish the course's present success in meeting expected obligations and practice

demands, and bring to light educational challenges and potential areas for development. Two underpinning issues are of particular concern, these being *what* students know and think and *how* they come to know and learn, particularly within the clinical environment, since this has the greatest influence on thoughts and actions and the power to contradict the formal curriculum (Goldstein *et al.*, 2006). Whilst these issues have been the focus of several research studies, few have focused on their interrelated nature; how intrinsic and extrinsic factors collectively underpin internalisation of the concept.

The overall research question is therefore: *What are students' perceptions of professionalism and how do factors within the clinical environment support learning, influence knowledge and attitudes and prepare them to meet professional standards and requirements?*

As a basis for curriculum reform it is important to gain insight into the type of professional emerging from current educational practices. There is an obvious need to explore students' level of connection with the concept prior to entry into the clinical environment. It is important to establish whether or not students perceive themselves to be part of a profession. This is an area that remains unexamined and is pertinent because students are the radiographers of the future and through their actions they have the capacity to shape roles and services and elevate the status of radiography.

Exploration into their understanding of and sense of belonging to a profession is significant. This will help determine the likelihood of the adoption and advocacy of professional ideals and their capacity for acting to ensure professional survival.

Assessing students understanding of and attitudes towards professionalism is of great consequence to reform, particularly as at pre-entry there is a naive appreciation of role (Karaoz, 2004), and favourable attitudes can only be surmised (Stern *et al.*, 2005). It is important to establish perceptions of what it means to be a professional, what is expected in this capacity and whether the concept is perceived in its multidimensional entirety. Previous studies measuring professional knowledge and attitudes have largely been via quantitative surveys and focused on one element of professionalism at one point in time (Veloski *et al.*, 2005). It seems applicable to extend the focus in line with the view that professionalism requires the integration of several elements (Van de Camp *et al.*, 2004), and develops over time (Hilton and Slotnick, 2005). Thus gathering quantitative data in relation to a number of professional expectations over the course of the year long clinical block provides an initial baseline indication of levels of knowledge and strength of attitude, on which subsequent results can be judged. What is more this provides an indication of the permanency of attitudes and whether the clinical environment contributes to the construction of knowledge and attitudes in a positive way.

Understanding how the clinical environment functions to promote learning and develop identity is of great consequence, so too is knowing how students exploit this in order to learn. Experience and integration with the community are dominant agents of transformation through the construction of meaning and identity (Lave and Wenger, 1991, p.101). Evaluating students' access to and active involvement with key 'situated' components (i.e. role models, reflective discourse etc.), is imperative. The level of engagement provides an indication of how accommodating the environment is towards students' education; revealing the potential to bring about greater understanding of the concept and revised ways of thinking and acting. Moreover it demonstrates the extent to which students integrate and make use of transformative components. This can be further supported by exploring students' self-assurance in mastering practice, awareness of development as a professional and change of identity, and the subsequent effect these have had on their practice, behaviour and attitudes. Accordingly this provides insight into the effectiveness of the socialisation process in nurturing a commitment to professional ideals.

Exploring the hidden curriculum

Knowing that students will be exposed to positive and negative clinical experiences and contradictory practices it is pertinent to explore the extent of what students learn from this and how they reconcile such disparity. This provides insight into the hidden curriculum and students' capacity to reflect

and regulate their behaviour. It is hoped that exploration of *what* students know and think and *how* they come to know and learn about professionalism will uncover the hidden curriculum, and reveal the values often veiled in the actions and language of the community, which can often bring about an unconscious change in points of view. This is significant as it brings to light cultural expressions of professionalism and makes evident what in reality has been learnt. Demonstrated is the capacity of the hidden curriculum to weaken students understanding and commitment to professional principles; however less reported are its positive aspects which can lead to a favourable impact on values and behaviour (Bennett *et al.*, 2004). It is anticipated that the nature and focus of this study will determine the merits as well as the limitations of the hidden curriculum in developing professionalism.

The complex and fragile nature of the hidden curriculum makes it a difficult area to research. This may account for its apparent dismissal as an area worthy of research. Subject matter is infinite, and unlikely to arise from one source, and what is taught is contextualised to points in time and institutional culture. What is learnt will vary according to personal experiences and it is impossible to isolate students' individual characteristics and existing attitudes which are likely to aid construction of meaning (Martin, 1976).

Although there appears to be a number of uncontrollable variables this does not exclude attempts to explore the hidden curriculum. Exploring perspectives, what has been learnt, and the factors and processes which have influenced such an outcome is possible (Bennett *et al.*, 2004). Looking for trends and relationships, and the learning states that result is also achievable (Martin, 1976). However, if sufficient insight is to be gained a qualitative approach to research needs to be undertaken (Cribb and Bignold, 1999). Unless efforts are made to explore the hidden curriculum it remains concealed (Martin, 1976), consequently the significance of practice based influences on the development of professionalism get overlooked. Once discovered, the hidden curriculum and elements which underpin it can be explicitly acknowledged and addressed within the formal curriculum and raised within the consciousness of students and the community so they can endeavour to uphold the desired learning outcomes and prevent the unwanted (Martin, 1976). It is accepted that it may be impossible to change external environments and the hidden curriculum, but an exploratory study at least opens a gateway for dealing with it.

4. METHODOLOGY

The literature review helped define the scope of the research and the investigative approach that needed to be taken, in order to identify what students know about professionalism and how they come to learn this. The research question has two very different but complementary components and in order to answer the question and satisfy the gaps in the knowledge base, a mixed method research strategy is necessary to explore the concept in its entirety. The combined use of a questionnaire and interviews were judged to be the most practical and suitable methods to obtain data. This section seeks to establish their appropriateness in relation to the research question and the research setting. Methods of investigation, procedures for data gathering and analysis are similarly justified. Ethical considerations and the position of the researcher are also outlined.

Justification for choice of methods

A mixed method design links together quantitative and qualitative paradigms. Each have different underpinning philosophies and make different assumptions about the social phenomena under investigation. Their complementary use enables the concept of professionalism to be explored from a 'macro' and 'micro' perspective and helps to counterbalance the limitations of each paradigm (Bryman, 2004, p.461). Quantitative research is concerned with the objective measurement of

phenomena. It draws conclusions and establishes causes from the numerical data and relationships that exist within it (Bryman, 2004, p.76).

Previous research undertaken to measure professionalism has shown that gathering quantitative data from a questionnaire has proved a useful means of assessing attitudes and levels of understanding (e.g. Woloschuk *et al.*, 2004). Its use within this study provides a means to investigate changes in attitude over time and gain an overall impression and synopsis of the concept under investigation and sanctions the exploration of influence from independent variables (Bryman, 2004, p460). Although its use increases the potential to seek opinion from a larger sample and increase the generalisability of the study (Robson, 2002, p.161), it provides only a narrow and superficial illustration of the concept and is limited in its capacity to elicit a detailed, reasoned response or explore the context of practice. This is where qualitative research supports the study. Flexible in its approach, it is concerned with understanding meaning and how this arises from interaction with the social world (Cohen *et al.*, 2000, p.20). Hence it presents an opportunity to gain a deeper insight into the meaning of professionalism; allowing the values attached to this and the broader issues that help shape professional development to be explored.

Observations and interviews are typically advocated as appropriate data gathering techniques. Observations have been used to evaluate professional development but this often relates to the assessment of a particular competence or tracking those with specific problems (Norcini, 2006; Papadakis *et al.*, 1999). Participant observation offers the potential to examine professional behaviour directly and identify social / cultural factors which are likely to influence actions and attitude (Robson, 2002, p.310). However, it does not readily grant access to inner feelings (Polgar and Thomas, 2008, p.116). This may explain why studies that have explored identity and socialisation have principally utilised interviews (e.g. Maben *et al.*, 2007; MacIntosh, 2003). Observation was also considered impractical. Extensive engagement within the clinical environment could not be sustained. Multiple placement locations raised issues with respect to gaining access to and 'working' within the environment. Moreover the research sought to determine if current educational practices produced professional radiographers. It would therefore have been unwise to adopt a method which interfered with the current situation. The presence of a lecturer who does not normally work alongside students may inadvertently distort their conduct and introduce bias. On this basis other means of gathering data were ruled out, e.g. use of reflective diaries.

Circumstances thus dictated that interviews were to be utilised. Several authors have proved that interviews facilitate the exploration of complex issues and can be used to gather rich and elaborate qualitative data in order to obtain a deeper understanding of values, identity, and the learning environment (e.g. Maben *et al.*, 2007; Melia, 1987). Hence within this study it offered a similar means to explore professional development. The location of students within geographically distributed clinical sites meant that individual interviews were more practical and convenient to arrange.

Each year one cohort of students on the programme undertakes a year long clinical placement. This was advantageous to the design and nature of the research. It permitted a prospective and longitudinal study appropriate to examining changes over time (Cohen *et al.*, 2000, p.175), and scope to repeatedly collect data. Learning in the workplace was uninterrupted thus minimising influence from interventions, such as lectures. The mixed method examination of one cohort during a continuous period of practice established the research as a case study, which provided a holistic insight into reality and the effect this had on development (Cohen *et al.*, 2000, p.181).

Ethical considerations

A researcher has an obligation to ensure that the research design and the collection and processing of the data conforms to set standards, is legal, unbiased, does not harm participants or infringe their human rights (Kumar, 2005, p.211-216).

Various measures were employed throughout the study to ensure compliance with expected obligations:

- ❖ Approval to undertake the study was sought, and granted by the institution's Research and Ethics Committee (Appendix 4a, b, c).
- ❖ Transparency with respect to purpose of study, terms of participation and specific use of data.
- ❖ Voluntary participation, with consent gained in advance of the study, and a right to withdraw at any time.
- ❖ Assurances of confidentiality and anonymity throughout the study and in the dissemination of findings.
- ❖ Established procedures for secure storage of data.
- ❖ Limiting potential for disclosure of malpractice and defining a course of action for dealing with such an occurrence.
- ❖ Termination of interview at signs of distress, and the subsequent destruction of data.
- ❖ Agreement to disseminate findings with participants and the professional community.

Researcher's position

Employment as a Senior Lecturer in Diagnostic Radiography at the higher education institution under investigation, and as a registered radiography practitioner imposes an inside researcher perspective. This is advantageous as there is familiarity with the subject area and the complexity of the context of practice. This facilitates a better understanding of the phenomena under investigation, and previous association with participants has the capacity to generate a receptive rapport which enables greater access to information and feelings, thus enhancing the richness of the data (Burgess *et al.*, 2006, p.36).

It is appreciated that such a close link may introduce bias / distortion as there are difficulties in detaching oneself from the process of data collection and analysis (Burgess *et al.*, 2006, p.36). Personal assumptions which instigated the research (i.e. that professionalism was not fully understood), past experiences of radiographic practice and the workplace environment have the potential to shape what is seen. However a sense of detachment and impartiality is capable of being achieved, since there is nothing to be personally gained from the outcome of the research. The research does not test a hypothesis but seeks to maximise the effectiveness of the course through an evidence based approach. There has only been intermittent experience in working as a radiographer in the last 10 years and no long term experience of working within the NHS environments under

investigation. This facilitated the capacity to be fairly open-minded whilst appreciating the 'backdrop' of the discussion.

In order to minimise the threats to validity and adopt a level of detachment necessary for impartial analysis so the truth can be sought, judicious methods and actions to encourage participation and minimise bias were applied. Employing two methods of data collection facilitated triangulation. This allowed comparisons between data sets and helped verify the findings by pinpointing relationships and convergence between data, as well as highlighting discrepancies and inconsistencies (Robson, 2002, p.175). Since the use of the questionnaire brought personal detachment from the data gathering process (Robson, 2002, p.98), it served as a 'monitor' and a cross referencing tool potentially keeping biases under control.

Pilot Study

Both data collection methods were piloted prior to commencing the study in order to test out the data collection tools, establishing their effectiveness in yielding required data (Oppenheim, 1992, p.47) and ascertaining potential methodological flaws likely to compromise the main study (Edwards and Talbot, 1999, p.186). The data gathered from the pilot interviews and questionnaire form no part of the main study. Details of the pilot study are outlined in chapter 5. The following discussion relates to the main study.

Sample

Fifty four undergraduate students from one cohort were invited to participate; no exclusion criteria were imposed. Although several students were known to have previously worked within similar healthcare settings, their inclusion was justified on the basis that this study sought to determine the development and assimilation of values and behaviours in the context of a new practice.

There is no agreement as to what is an appropriate sample size when gathering qualitative data via interviews (Cohen *et al.*, 2000, p.278), since qualitative research demands depth and quality rather than quantity (Oppenheim, 1992, p.68). It was decided that conducting interviews with ten students (approximately 20% of the sample) was a manageable figure given the nature and time frame for the study, and increased the potential for the sample to be representative of the cohort. Of those students who consented to interview, 10 were randomly selected; the process of this is outlined later in this report.

Timing of the study

Data was collected over a fourteen month period between December 2005 and January 2007. The study had three phases:

- ❖ Phase 1 – December 2005, first questionnaire followed by interviews in January 2006.
- ❖ Phase 2 – May 2006, second questionnaire (this phase coincided with a change in clinical placement).
- ❖ Phase 3 – January 2007, third questionnaire and interviews.

Data collection was timed so it had minimal impact on students' clinical / academic commitments. The questionnaire was administered at three set points in time, at the start, middle and end of the year long clinical placement. Interviews were conducted at the start and at the end of the study. Since the two methods were complementary, it was anticipated that the potential for each method to bias the other would be minimal.

Construction of the questionnaire

Exploration of attitude is best measured using an attitude rating or a ranking scale (Oppenheim, 1992, p.187), and is a favoured approach to measure professionalism (e.g. Woloschuk *et al.*, 2004). Literature reveals that there is no recognised scale for assessing the multidimensional nature of professionalism (DeWitt *et al.*, 2006, p.100). Hence it was necessary to develop a questionnaire with the knowledge that it may prove to be unreliable as is often the case (Veloski *et al.*, 2005). The questionnaire was

divided into two sections (Appendix 5). Section 1 contained questions relating to professionalism and section 2 sought to elicit biographical details likely to influence attitudes.

Attitude questionnaires require respondents to express their level of agreement with a series of statements (Walsh, 2001, p.63). Models of professionalism and codes of conduct (CoR, 2004; HPC, 2004) were used as the basis for these statements. Twenty four statements were included and categorised according to Van de Camp *et al's.* (2004) multidimensional model (Appendix 6). Each expressed a point of view about a particular professional behaviour or belief, and offered a five point Likert fixed response format, in both positive and negative forms with both positive – negative and negative – positive responses. The purpose of this was to force respondents to carefully consider their choice, guarding against acquiescence response bias, whereby respondents repeatedly select the middle alternative (Polgar and Thomas, 2008, p.103).

The Likert format permitted qualitative data to be standardised and converted into quantitative data. Consequently data could be statistically analysed and extended beyond descriptive analysis, potentially providing explanations and establishing relationships through correlation testing (Robson, 2002, p.235). By nature, attitude scales represent closed questions with no freedom to explain or justify their opinion (Cohen *et al.*,

2000, p.248). Participants were invited after every question to comment, giving a further account of their feelings. This provided additional supportive qualitative information.

Question 25 asked participants to rank in order of importance 10 professional characteristics. Ranking scales provide insight into priorities and preference for specified choices (Cohen *et al.*, 2000, p.252).

Oppenheim (1992, p.177) suggests that attitudes are linked to deeper value systems. Scheler (1992, cited in DeWitt *et al.*, 2006, p.103) suggests values are hierarchical; those rated highly are enduring and act as the foundation to all other values. Hence the purpose of this question was to illuminate underpinning values.

The same questions were used in each questionnaire; however there was a change in the order of presentation and positive - negative orientation to both the statements and the response categories for questions 1 - 24. This acted as a means of limiting habitual response. Question 25 remained static.

Configuration of the interview technique and schedule

Semi structured interviews were considered appropriate to this study in view of the topic and the characteristics of the sample. It is particularly favourable as it allows the researcher to pursue a predetermined list of questions,

enabling the focus on professionalism to be maintained, whilst providing scope to modify existing questions or ask additional questions and explore new information as it surfaces (Robson, 2002, p.270). An unstructured approach was rejected on account that there was a significant risk of collecting irrelevant and incomplete data (Cohen *et al.*, 2000, p.277) by placing onus on the students to provide information about a topic they may only have a limited appreciation of.

The literature review and data from the pilot study interviews provided the basis for the questions to be asked. Questions were open in nature allowing participants the freedom to respond in detail and in their own words (Polgar and Thomas, 2008, p.108). The first set of interviews sought to explore motivations for entry into radiography, perception of role, level of social integration, understanding of professionalism and factors which guided personal actions (Appendix 7). These topics were revisited in the second set of interviews; in addition levels of engagement with the processes of transformation and subsequent changes in self were explored (Appendix 8).

Approach to subjects

The study was publicized to the students four weeks prior to its commencement. A short presentation was delivered at the start of a lecture (Appendix 9), this outlined the study's purpose and expected level of involvement, and provided an opportunity to answer questions and address

any concerns. Students had three weeks in which to consider taking part and were provided with a letter (which reiterated the content of the presentation) (Appendix 10), and a consent form (Appendix 11).

The presentation and letter placed emphasis on the following: voluntary participation, maintenance of confidentiality and anonymity, the right to refuse and withdraw at any time, the benefits in contributing and level of expected involvement. The study was promoted in terms of enhancing the quality of subsequent course content and delivery. In order to maximise response a verbal reminder was issued 2 weeks prior to the start of the study.

Administration of the questionnaires

The first questionnaire was administered on a group basis for convenience. This provided an opportunity to answer queries relating to its completion and guarded against failure to return, errors in completion, and reduced the potential for student collaboration (Robson, 2002, p.251).

With the aid of a *PowerPoint* presentation (Appendix 12) participants were shown how to complete the questionnaire; illustrations given had no association with the topic under investigation. In order to increase honesty and a willingness to partake, anonymity is required (Cohen *et al.*, 2000, p.129). Each questionnaire needed to be coded in order to connect together

each respondent's set of questionnaires, enabling changes over time to be charted and the withdrawal of questionnaires if requested. To ensure the process did not threaten anonymity, coding was achieved by utilising a pack of playing cards; one card was selected by each participant. Participants were asked to record the number / picture and the suit, e.g. 6 of diamonds.

It was apparent that students from ethnic minorities were under represented in the study. Via email students were asked to reconsider taking part. Following this no further action to gain participants was taken; on the basis that this would be unethical as students had been approached and reminded of the research several times.

At the time of the administration of the 2nd and 3rd questionnaires students were in clinical placement. Instructions and questionnaires etc. were posted to students' term time address.

Selection and approach to those willing to be interviewed

From those who consented to partaking in an interview, only 10 were required. Proportionate stratified sampling was employed (as far as possible) to ensure those being interviewed were representative of the cohort. For example, the ratio of females to males within this group was 7:3 therefore the group of 10 had to contain 3 males. Sampling in this manner ensures a variety of opinion is collected limiting bias with respect to gender,

age and ethnicity (Cohen *et al.*, 2000, p.101). Participants were grouped according to discrete characteristics and then randomly selected in accordance with the composition of the group (Cohen *et al.*, 2000, p.101). To eliminate bias this process was undertaken by a colleague unconnected with the research and with radiography. Table 4.1 shows the differing characteristics and the numbers ideally required in order to achieve a representative sample. Figures are taken from the course entry records.

Table 4.1: Cohort characteristics and number required for interview

Characteristic		Number in cohort (n = 54)	Number required for interview
Gender	Male	16	3
	Female	38	7
Age	< 30 years	39	7
	≥ 30 years	15	3
Ethnicity	White	31	5
	Black	10	2
	Asian	8	2
	Other	5	1

Each of the selected participants was asked to confirm their willingness to partake (Appendix 13). No information was provided about the nature and content of the interview, in order to bring about spontaneity and guard against pre-planned answers (Oppenheim, 1992, p.68-69). In cases where selected students declined to be interviewed, alternative participants were sought.

Interview process

Interviews were conducted in private with no other persons present. The format of the interviews closely followed guidelines by Robson (2002, p.277) (Appendix 14 & 15). Questions were presented in a logical format to facilitate a natural progression and maintain conversational fluidity. An initial broad question provided participants with an opportunity to talk about themselves; this aimed to relax participants and establish spontaneous rapport (Oppenheim, 1992, p.71). Furthermore an ethical responsibility to reaffirm consent and inform participants of their rights provided a formal start, and this served to diminish the necessary preamble.

Every effort was made to reduce the asymmetry of the relationship and create a relaxed setting so to establish a rapport, motivate the participant and place them at ease in order to encourage openness and honesty (Cohen *et al.*, 2000, p.279). Each interview lasted 60 minutes. To maximise validity and allow continual post interview scrutiny, an audio tape recording

was made. A checklist was produced which mimicked the interview schedule but incorporated free space to write comments and note non-verbal observations. This served as an aide memoir, ensuring all topics were addressed. An unrecorded de-briefing session followed each interview in order to review content and any issues that arose as a consequence of the interaction.

Analysis of the questionnaires

Data from the questionnaire was examined through the use of descriptive (measures of central tendency) and inferential statistics (correlations). The computer programme *Statistical Package for the Social Sciences* (SPSS) was used to analyse the data.

Since the questionnaire (the dependent variable) was delivered at three different points in time and generated parametric data that may potentially be attributable to several independent (demographic) variables, a repeated measures Multifactorial Analysis of Variance (MANOVA) was considered appropriate (Hinton *et al.*, 2004, p.380). This allows the exploration of variation in the scores generated over time and whether observed variations are attributable to personal characteristics, treatment effect or simply due to error (Colman and Pulford, 2006, p.148), i.e. random factors which may affect outcome such as personal feelings at time of completion (Hinton *et al.*, 2004, p.141).

Factor Analysis is also an appropriate analytical method for this mixed design. It similarly allows correlations to be sought between numerous dependent and independent variables (Colman and Pulford, 2006, p.138-139) and provides evidence of validity and reliability of the structure of the questionnaire (Munro, 2001, p.307). However, its capacity to be unreliable when data is based on a small sample excludes its use (Colman and Pulford, 2006, p.138-139). The internal consistency, reliability and construct validity of the questionnaire was alternatively measured using Cronbach's alpha co-efficient (Munro, 2001, p.307). To further measure the association, direction and strength of the relationship between variables, Pearson's correlation coefficient was also performed (Munro, 2001, p.224).

MANOVA and Pearson's correlation coefficient both rely upon certain assumptions being met (Munro, 2001, p.203 & p.226). In contrast Friedman's test makes fewer assumptions about the data and is focused on analysis of the ranking of scores as opposed to the actual scores.

Friedman's test represents a non-parametric equivalent of a MANOVA (Hinton *et al.*, 2004, p.98 & p.267). It is used here as an alternative test and a means to substantiate the findings of the MANOVA.

The conventional alpha level of significance (symbolized by the letter p) was set at 5%, where $p \leq 0.05$. The level of significance represents the point at which the existence of a relationship between variables is either accepted or

rejected (Edwards and Talbot, 1999, p.143). An alpha level of 0.05 or below represents the probability (and some degree of confidence) that the results have not occurred by chance and demonstrates that there is a difference between sets of data or that there is a genuine effect (Cohen *et al.*, 2000, p.195). Different levels of significance can be set. Lowering the level to 1% ($p \leq 0.01$) would increase levels of confidence with respect to the relationship but would increase the risk of making a type II error, i.e. accepting there is no effect / difference when one does exist (Field, 2005, p.31). The small sample size and repeated administrations of the questionnaire similarly increase the risk of a type II error (Munro, 2001, p.81). Although this can be overcome by increasing the alpha value to 10% ($p \leq 0.1$) this increases the risk of making a type I error, accepting an effect / difference when one does not exist (Field, 2005, p.31). Setting the alpha value at 0.05 is considered a reasonable choice as it minimises the risk of both types of errors of inference (Kerr *et al.*, 2003, p.45).

Analysis of the interviews

A verbatim word processed transcription of each interview was produced. Other than the exclusion of names and places there was no refinement to the data. Paralinguistic and non-verbal aspects of communication were added to each transcript in order to contextualise the meaning and limit the scope for misinterpretation (Cohen *et al.*, 2000, p.282). Prior to analysis

participants were asked to review their transcripts and field notes to ensure accuracy (Appendix 16).

Analysis focused on content and adopted a template approach. The literature established that key factors influenced the development of professionalism. This information provided the framework of the questions asked, and provided a predetermined set of codes / themes for analysis. Personal unfamiliarity with computer software designed for qualitative analysis and the small sample size resulted in manual analysis of the data. The reduction and selection of relevant data transpired through a series of actions, based on Charmaz's model (1991 cited in Liamputtong and Ezzy, 2005, p.270), which explores feelings, meaning and action.

Initially each question was analysed and responses were charted onto a matrix. Collectively these acted as a code book and provided a general overview and insight into the prevalence of similar or differing opinion, assisting to establish further themes on the basis of the responses given (Kumar, 2005, p.231). Comments provided in the questionnaires were analysed in a similar manner. Following this, each set of transcripts were analysed in order to gain an overall perspective and note changes over time; a summary of the findings were produced. Responses were classified according to the previously identified themes and as new themes emerged analysis continued until saturation was reached. Each theme was examined

with data being clustered into the sub themes. Conceptual network diagrams were produced in order to establish inter-relationships between themes; helping to shape the theoretical conclusions drawn (Robson, 2002, p.482).

Manual analysis is known to be problematic with the potential for bias and inconsistent interpretation (Robson, 2002, p.460). However processing the data in the manner described provided an audit trail. At each stage emerging information was continually cross referenced with other records i.e. the code book, summary sheets and data from the questionnaire, in order to ensure participant perspectives were not set aside in preference to personal assumptions (Robson, 2002, p.476).

The findings of the main study that emerged from the analysis of the questionnaire and interview data are documented and discussed within chapter 6. Preceding this, chapter 5 provides insight into the pilot study process, its outcomes and the modifications made prior to the main study being undertaken.

5. PILOT STUDY

Prior to the main study a pilot study was undertaken. Its main purpose was to test out the data collection tools and the process by which data was to be acquired (Walsh, 2001, p.77), and establish its effectiveness in yielding sufficient and appropriate data (Oppenheim, 1992, p.47). It facilitated an opportunity to gain external perspectives, which helped establish and resolve potential problems and methodological flaws (Cohen *et al.*, 2000, p.258). As a consequence modifications and refinements to data collecting techniques, study design and analysis were made. This section outlines the pilot process and the outcomes.

Pilot of the questionnaire

It is imperative respondents have no difficulties in answering the questions. The correct wording and comprehensibility of the instructions and that of each question is crucial since misinterpretation fails to produce the responses required, which means answers cannot be processed (Oppenheim, 1992, p.49).

The questionnaire used in this study is self administered, thus any pilot work needed to include an assessment of the questionnaire's content, wording, layout, question sequence, answer categories, the adequacy of the spaces allocated to answer open ended questions, and the time taken to complete (Cohen *et al.*, 2000, p.260). In order to assess this, a pilot analysis

questionnaire was devised to evaluate the questionnaire and supporting information.

Piloting the study amongst members of this cohort would have reduced the number eligible to take part in the main study (Oppenheim, 1992, p.62). It was therefore necessary to seek an alternative pilot sample. Third year diagnostic radiography students were selected as they provided a convenient judgment sample; comparative because of their correspondent educational and clinical experiences and likely to have similar levels of literacy (Oppenheim, 1992, p.62). The topic of professionalism has relevance to their practice and they were likely to be aware of and have some understanding of the subject matter. The imminent graduation of these students reduced the chance of exposure to students in other cohorts; hence collusion and contamination of the data would be limited. Ideally the sample size for a pilot study should equate to 10% of the main study sample (Edwards and Talbot, 1999, p.39), thus five participants were required to take part.

The pilot study aimed to mirror that which was to occur in the main enquiry. However the location of the students enforced minor variations. Each of the 42 third year students received a letter which outlined the purpose of the pilot study (Appendix 17) and an addressed envelope for return of the consent form which was also included (Appendix 11).

After two weeks only five students had expressed an interest in taking part of which 4 agreed to be interviewed. Table 5.1 outlines their biographical details.

Table 5.1: Biographical details of pilot study participants

Student	Gender	Aged between	Ethnicity	Willing to complete questionnaire	Willing to be interviewed
1	Male	40 – 44	White	Yes	Yes
2	Male	45 plus	White	Yes	Yes
3	Male	20 – 24	White	Yes	Yes
4	Female	35 – 39	White	Yes	Yes
5	Female	20 – 24	Other	Yes	No

Their characteristics are by no means representative of their cohort. Indeed they could be described on the whole as the most responsible, conscientious, and proficient students within the cohort. A decision not to seek out other students was on the basis that the pilot was to test out the data collection tool and the process rather than acquire useable data on the topic itself, and that these students were likely to commit themselves to the task.

Each of the pilot participants received the following:

- ❖ A covering letter / instructions (Appendix 18). Participants were encouraged to be critical of the information, questions and the questionnaire layout, drawing attention to any part of the questionnaire or instructions they did not understand or found ambiguous. Confidentiality of the information contained within the questionnaires was assured.
- ❖ The information leaflet and the questionnaire to be given to participants in the main study.
- ❖ A pilot evaluation questionnaire relating to the layout, structure and design etc. of the information sheet and questionnaire (Appendix 19).

Evaluation of the pilot questionnaire

Within one week all questionnaires were returned. Both questionnaires were completed as required and constructive criticism was conveyed. All participants expressed that the information sheet was comprehensible; a few minor spelling and grammatical errors were reported. It was personally realised that the option to be interviewed without completing a questionnaire had been provided. This was considered inappropriate and could possibly lead to the existence of two different samples within the same study which would skew the results. Hence the letter was amended, informing students that they could choose either to only complete the questionnaires or complete the questionnaires and agree to be interviewed.

Participants answered all questions on the pilot questionnaire, and provided additional thoughts and comments which elaborated on the issues the questionnaire addressed. Several questions were considered ambiguous and preliminary analysis also led to the detection of other errors. The changes deemed necessary and the justification for these can be found in Appendix 20. Although question 25 was completed as required, suggestions of how to improve the wording of the instructions were offered. The questionnaire took between 20-25 minutes to complete, which was considered acceptable.

Re-pilot of the questionnaire

Following amendments, participants were sent new instructions and a questionnaire that included only those questions which had been amended and one additional question previously omitted. Participants were asked to complete and provide comments as well as offer criticism through a similar pilot analysis questionnaire. Four participants completed and returned both questionnaires; all changes to the wording of the questions were considered acceptable and less ambiguous than previously stated. No comments were made about the additional question. Thus the pilot study for the questionnaire was considered to be conclusive.

Pilot of semi-structured interviews

Due to illness only three participants were interviewed, all of which were white males. Alternative participants with differing characteristics were not sought on account that the aim was to test out the proposed questions and develop the interviewer's skills rather than generate data.

Face to face interviews were arranged at a time and place suitable to the participants. Interviews were recorded on audiotape and additional notes were taken. There was at least five days between each interview which provided the opportunity to review the content and evaluate the process. The interview questions remained the same for each interview (Appendix 21). Prompt cards were used as a means to trigger discussion.

Evaluation of the pilot interviews

Whilst there is an abundance of information relating to the evaluation of questionnaires, there are limited sources of information that provide guidance on how to evaluate the interview process and interviewing skills. Unfortunately the opportunity to gain feedback from participants was overlooked, limiting insight into effectiveness and target areas for improvement (Hargie and Tourish, 2000, p.79). However a critical review of the process and skills from a personal viewpoint was undertaken. In an attempt to be systematic the evaluation took account of the method

described by Arksey and Knight (1999, p.108), which focuses on conversational outcome and interactions.

As recommended each interview lasted approximately one hour (Robson, 2002, p.273). The audio recordings were generally acceptable although background noise could be heard making some aspects of the conversation difficult to transcribe. An external microphone was purchased to rectify the situation. In the main study its use was monitored to ensure its visibility did not impact negatively upon data collection.

From the outset each participant talked openly and with sincerity. This may be due to the informal relationship that exists between the researcher and the participants. However it also reflects that the informal conversation that took place immediately prior to the interview and the initial broad open question fulfilled their aim to build rapport and relax participants (Oppenheim, 1992, p.71). The spontaneous response to each question and lack of hesitation when answering suggested participants were comfortable with the situation. No atypical verbal and non-verbal actions were noted which would have suggested that participants were perturbed by the presence of the tape recorder (Oppenheim, 1992, p.71), or that the event had caused distress. The dissimilarity of age and gender did not prove to be a disadvantage as is sometimes the case (Wisker, 2001, p.173).

The initial positive rapport continued throughout the interview. There was no evidence of reluctance to answer any particular question. One participant was over keen to please and continually sought assurance that the answers provided were in accordance with what was expected. This highlighted a need to place emphasis on the fact that personal opinion was being sought, that there are no right or wrong answers and that any information supplied is beneficial.

Question wording seemed appropriate and clarification was sought only on a few occasions. Participants remained motivated; there was evidence that this was strengthened by the actions of the interviewer. The conversation was not overshadowed by the researcher's commentary (Robson, 2002, p.274); furthermore verbal reinforcement, validation, and reflection techniques provided an observable indication of listening and encouragement to continue. The frequent use of paraphrasing provided clarification and accurateness of understanding (Arksey and Knight, 1999, p.100-101).

Weaknesses and negative actions relating to interviewing technique were identified, in particular the disclosure of personal opinion (although instances were few). Not wishing to alienate participants, force answers, or cause embarrassment when met with silence, the interview was moved on, thus curtailing the opportunity for participants to develop their ideas. The

need to be more conscious of personal actions was recognized in order to preserve the quality and validity of the data (Arksey and Knight, 1999, p.103).

Hesitation in the delivery of questions was on occasion observed. In addition, the wordings of the questions were unconsciously being expanded and transformed. Open questions were inadvertently changed into multiple questions. This inevitably led to questions being unanswered. Several opportunities to probe were overlooked; this meant that there was a superficial exploration of some key issues or an end to the discussion.

The documentation of verbal and non-verbal responses was inconsistent. Keeping pace was difficult and often consciously abandoned as it was considered distracting, affecting conversational flow or unconsciously abandoned through involvement in the discussion. Such lapses were in part due to the layout and construction of the interview schedule; its overcrowded presentation made it difficult to follow, specific probing options were not included and there was limited space to record information. In a bid to overcome such problems, the schedule was revised (Appendix 22). This was utilized within the third interview where it was observed that note taking was more easily achievable, topic progression was fluent and the conversational style was more spontaneous as required (Oppenheim, 1992, p.67 & p.70).

A series of prompt 10 cards reflecting a range of professional attributes / expectations were utilized. These did not prove to be as successful as anticipated and elicited 'all you know' responses making it hard to differentiate personal opinion from fact, thus the idea was rejected.

The sequential progression worked as anticipated. A few changes needed to be made to the wording of some questions. There was ambiguity in how the question '*Is radiography living up to your expectations?*' was answered. This did not provide sufficient scope to explore previous perceptions of role and how this had changed following experiences. Hence questions were developed to delve into this issue. It was apparent that participants had been allowed to use the words professional and professionalism without verification of meaning. The inclusion of a question to explore the meaning of terms was to be included in order to eliminate the potential for ambiguity and ensure correlation between interpretive frameworks. The wording of some questions was changed to include the words unprofessional and professional with reference to attributes and behaviour. This was done as a means to focusing attention on a range of behaviours, for example previous questions such as '*what makes a good / bad radiographer?*' had generated answers which related only to technical competence.

Several additional topics worthy of exploration were generated as a consequence of discussion which clearly had relevance, such as career

aspirations and previous employment. These formed the basis for several new questions. Further reading since the construction of the interview schedule served to reinforce the relevance of the questions but also prompted elements such as use of the code of conduct to be more explicitly considered.

Ideally any change needs to be re-piloted, however the longitudinal nature of the main study necessitated timely data collection, thus re-piloting the interviews was forsaken. Such an action was not considered detrimental as the questions originally asked were relevant and required minimal modification or expansion to take account of topics generated through discussion. Furthermore the initial interviews in the main study were intended to provide insight into perceptions of professionalism and act a gentle 'warm-up' for participants who may not be familiar with being interviewed. This in itself provided further opportunity to strengthen those interviewing skills that had been exposed as inadequate.

The pilot project was a worthwhile and insightful activity. It highlighted methodological flaws and established the effectiveness of the researcher and the data collection tools, allowing refinements to occur before undertaking the main study. With respect to interviewing, attention was drawn to the need for personal development in key areas in order to ensure greater validity and reliability. The efficacy of the questions and further

topics to explore were uncovered as a result of analysis. Furthermore the information gained from participants reinforced the need to continue with the study.

6. DISCUSSION OF RESULTS (Main Study)

Chapter 3 showed that professionalism is based on the convergence of attitudes and behaviours and an unvarying commitment to each of its facets in order to meet the expectations of patients, society and the profession. Underpinned by the concept of care, it is anticipated that orientation towards professionalism generates trust and brings about excellence in care, improvements in service and development of the profession. Personal frames of reference, professional identity, personal experience, discourse and reflection and associations with the professional community are significant factors which interact to influence the development of professionals, their attitudes and approach to practice. In order to gain insight into development and orientation towards professionalism, two different but complementary data collection methods were employed. Changes in attitude over time were measured using a questionnaire whilst interviews were used to explore the extent to which personal understanding and aspects associated with clinical practice influenced development.

Although the two methods sought to explore the concept from two different perspectives there was convergence between the data sets. Evidence from the interviews supports the findings of the questionnaire and exposes the underlying reasons for the results that emerged. To ease understanding, the findings of each set of data are presented separately. In each case the central findings are outlined along with evidence to support the claims. This

is then expanded upon and validated through discussion in relation to key literature and principle themes. The phased and longitudinal nature of the study resulted in sample attrition (Robson, 2002, p.161), consequently the number of participants at each phase varied. Table 6.1 provides a summary of the number of students participating at each phase. It should be noted that 54 students within one cohort were originally approached to take part in the study and that only 18 participants completed all 3 questionnaires.

Table 6.1: Number of participants at each phase of the study

	First Phase December 2005	Second Phase May 2006	Third Phase December 2006
Number of participants completing the Questionnaire	Questionnaire 1 27	Questionnaire 2 26	Questionnaire 3 22
Number participating in semi structured Interview	Interview 1 10	---	Interview 2 7

Quantitative data analysis (questionnaire)

Central findings

Principally the findings show that overall attitude did not change over the course of the year and that no specific aspect of professionalism was dominant. Attitudes were not influenced by any particular variable. In addition underlying values associated with technical competence remained unchanged.

Over the 3 phases 75 questionnaires were completed by 29 respondents. Eighteen respondents completed all three questionnaires; this represents 33% of the cohort and 66% of the original number of respondents in the first phase of the study. The results from the questionnaires were examined using an overall professionalism rating scale (*P-score*) and by examining descriptive and inferential statistics.

From the answers given to questions 1 – 24 an overall rating of each individual's attitude towards professionalism was obtained (*P-score*). For each question it was possible to obtain a score between 1 and 5, where 5 equated to an attitude in accordance with the required professional value with 1 being associated with an opposing attitude. Hence the possible range of *P-scores* was 24 -120 with 72 representing the mid point of the scale.

Table 6.2 demonstrates the wide range of scores at each phase of the study and shows there is little difference in the mean scores. Although the mean scores are situated towards the top end of the scale and arguably represent a positive result, standard deviation (SD) which measures the spread of scores around the mean (Edwards and Talbot 1999, p.137) indicates a large amount of variability in the distribution of scores, and reflects diverse attitudes.

Table 6.2: Measures of dispersal and *P*-scores for each phase

	Range	Mean	Standard deviation
First Phase Questionnaire 1 December 2005 n = 27	74 – 107	91.2	8.5
Second Phase Questionnaire 2 May 2006 n = 26	83 – 107	93.1	6.1
Third Phase Questionnaire 3 December 2006 n = 22	76 – 107	91.4	8.5

Overall there has been no change in the strength and convergence of attitude over the course of a year. A reduction in the range of scores and SD which are apparent during the second phase has been restored in the third phase and corresponds with that of the first phase. Between each of the three phases there is only slight variation in *P-scores*. There is a trend in those scoring below the mean in the first phase to display a sharper increase in scores at the second phase, compared to those who originally had scores above the mean, which may account for this compression. It is likely that what is being observed is the phenomenon of regression towards the mean. As some participants scores have increased, the score of other participants decreased thus creating a static average score (Kumar, 2005, p.97).

The demographic features of respondents at each phase of the study can be seen in Table 6.3. At each phase respondents' characteristics were not representative of the cohort (as detailed within the methodology), with an under representation of respondents below the age of thirty and who class themselves as non-white. Table 6.3 suggests scores are not acutely associated with any particular variable, although *P-scores* of female participants appear to be higher than the males. The measures of central tendency between each questionnaire and for each variable are similar. The trend for a slight increase and then a decrease in scores across the phases can be observed in several cases.

Table 6.3: Demographic variables and measures of central tendency

Demographic characteristic			Questionnaire 1	Questionnaire 2	Questionnaire 3
TOTAL POPULATION		Number Mean SD	27 91.2 8.5	26 93.1 6.1	22 91.4 8.5
GENDER	Male	Number Mean SD	9 86.4 6.5	10 92.5 4.0	7 89.3 8.8
	Female	Number Mean SD	18 93.6 8.5	16 93.4 7.2	15 92.3 8.5
ETHNICITY	White	Number Mean SD	20 90.2 8.5	18 92.9 4.8	17 91.0 9.1
	Non- White	Number Mean SD	7 94.3 8.3	8 93.5 8.7	5 92.6 6.8
AGE	< 30	Number Mean SD	13 91.1 7.6	13 94.0 6.1	12 89.7 6.1
	≥ 30	Number Mean SD	14 91.3 9.5	13 92.1 6.1	10 93.4 10.8
PREVIOUS EXPERIENCE	Yes	Number Mean SD	15 91.4 9.5	14 93.4 6.2	12 90.5 8.6
	No	Number Mean SD	12 91.0 7.4	13 92.7 6.1	10 92.4 8.8

Of the 18 respondents who completed all three questionnaires (completers) 61.1% (11) were female, 38.9% (7) were male, 77.8% (14) classed themselves as white, and 22.2% (4) classed themselves as non-white. The number of respondents aged below and above 30 was equal. Previous experience within a health or social care setting was claimed by 61.1% (11) respondents.

There were 11 incomplete sets of questionnaires. Of this group (partial-completers) 36.4% (4) were male, 63.6% (7) were female, 63.6% (7) were white, and 36.4% (4) were non-white. The number of respondents aged below 30 was 54.5% (6), the remaining 45.5% (5) being 30 or above. Only 36.4% (4) claimed to have had previous health or social care experience.

Within the total population 55.6% (15) claimed to have worked (voluntary or paid) within a health or social care environment. The majority of these experiences were within the healthcare sector; where this was not the case experience was gained in other institutions where the client group could be deemed as vulnerable, e.g. school children and the bereaved. It is not uncommon for students to enter into radiography without some association with care but it is not a specified prerequisite. There is no data available to suggest that this figure is typical.

The two sub groups i.e. the completers and partial-completers showed a similar display of characteristics and distribution of scores as shown in Table 6.4. This rules out the distortion of the overall results by either group and provides evidence that no particular variable influences completion or non-completion of all three questionnaires. In the same way Table 6.5 demonstrates that across all three phases of the study there is little difference in the mean scores of each group for each professional subsection of the questionnaire. Measures of standard deviation for the total population and the completers are comparable. There is some variation in the standard deviation for the group of partial-completers; the small sample size of this group makes this aspect of the data unreliable. However what is reflected is that over time and across subsections there is consistency of attitude and that no one particular aspect of professionalism is dominant.

Table 6.4: Comparison of group characteristics at phase 1 of the study

Demographic characteristic		Comparatives	Total number of respondents	Completers	Partial Completers
TOTAL POPULATION		Number Lowest <i>P</i> -score Highest <i>P</i> -score Range Mean SD	27 74 107 33 91.2 8.5	18 74 107 33 92.2 8.2	9 79 103 24 89.2 9.2
GENDER	Male	Number Mean SD	9 86.4 6.5	6 88.7 6.6	3 82.0 4
	Female	Number Mean SD	18 93.6 8.5	12 94.0 8.6	6 92.8 9.2
ETHNICITY	White	Number Mean SD	20 90.2 8.5	14 91.7 8.2	6 86.5 8.8
	Non-White	Number Mean SD	7 94.3 8.3	4 94 9.1	3 94.7 9.1
AGE	< 30	Number Mean SD	13 91.1 7.6	9 91.4 6.8	4 90.3 10.5
	≥ 30	Number Mean SD	14 91.3 9.5	9 93.0 9.8	5 88.4 9.3
PREVIOUS EXPERIENCE	Yes	Number Mean SD	15 91.4 9.5	11 90.4 9.3	4 89.2 9.3
	No	Number Mean SD	12 91.0 7.4	7 95.1 5.6	5 85.2 5.6

**Table 6.5: Measures of central tendency for each participating group
and subsection of the questionnaire**

Category of professionalism	Group	Comparatives	Questionnaire 1	Questionnaire 2	Questionnaire 3
PUBLIC (possible score range 10 - 50)	Total population	Number Mean SD	27 37.8 4.8	26 36.9 3.7	22 36.6 4.2
	Completers	Number Mean SD	18 37.8 4.3	18 37.3 3.4	18 36.9 4.0
	Partial Completers	Number Mean SD	9 37.8 6.0	8 36.0 4.6	4 35 5.3
INTER PERSONAL (possible score range 9 - 45)	Total population	Number Mean SD	27 34.0 4.1	26 35.6 3.7	22 35.6 4.2
	Completers	Number Mean SD	18 34.8 4.1	18 36.3 2.4	18 35.9 2.9
	Partial Completers	Number Mean SD	9 32.3 4.0	8 34.3 5.0	4 34.3 5.0
INTRA PERSONAL (possible score range 5 - 25)	Total population	Number Mean SD	27 19.5 2.1	26 20.5 1.6	22 19.1 3.0
	Completers	Number Mean SD	18 19.7 1.7	18 20.7 1.5	18 18.8 3.1
	Partial Completers	Number Mean SD	9 19.1 2.2	8 20.0 1.6	4 20.7 2.4

Further evidence that there was no substantial change in attitude comes from analysis of question 25. The summation of the ranking of a series of professional characteristics remains remarkably consistent across the three phases as Table 6.6 demonstrates.

Table 6.6: Ranking of professional characteristics

(1 = most important, 10 = least important)

Professional characteristics	Ranking Questionnaire 1 December 2005 n = 27	Ranking Questionnaire 2 May 2006 n = 26	Ranking Questionnaire 3 December 2006 n = 22
Knowledgeable about the subject	3	3	3
Respects confidentiality and privacy	5	5	4
Honest and trustworthy	6	6	6
Unselfishness	10	10	10
Shows empathy towards others	9	7	5
Possesses high technical expertise	2	1	1
Possesses good interpersonal skills	4	2	2
Treats everyone with equal respect	1	4	7
Willing to work as part of a team	7	8	8
Continually acquires new knowledge	8	9	9

Of note is that being unselfish is unvaryingly ranked as the least important characteristic. Although a high level of technical expertise is regarded as an important characteristic, acquiring new knowledge is given considerably less importance. The possession of good interpersonal skills has an increased level importance. Over time greater value has been placed on empathising with patients and less on treating people with equal respect which has continued to decline and was initially considered *the* most important characteristic.

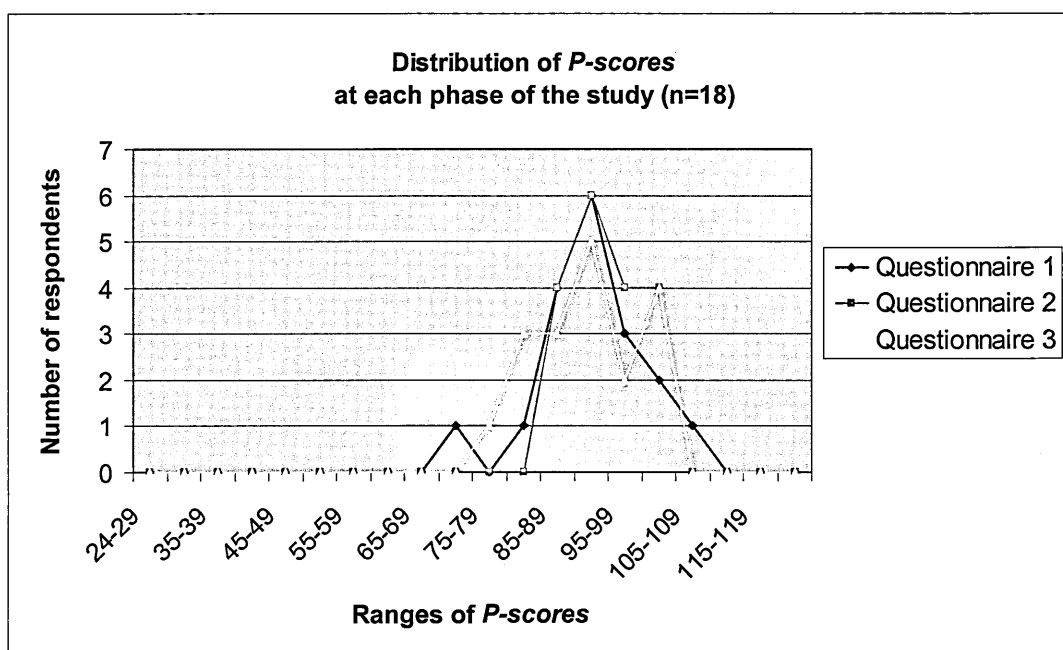
Multifactorial analysis of variance (MANOVA)

The MANOVA was used to determine if observations in Tables 6.2 - 6.5 were valid and establish (via a more systematically approach) if there were any significant differences / variations in the *P*-scores over time.

As some data sets were not complete the MANOVA analysis is limited to the 18 participants who completed all three questionnaires. MANOVA relies upon certain assumptions being met. Ideally there has to be a normal distribution of data (Munro, 2001, p.203), and as Chart 6.1 demonstrates this assumption was not met. At each phase the numbers of cases that fall above and below the mean are not equal. For questionnaire 1, extreme scores are observable, demonstrated where the curve intersects the x-axis (Polgar and Thomas, 2008, p.167). However, this did not exclude the use of the test as MANOVA is considered robust and accommodating of minor

violations of the assumptions (Field, 2005, p.324), and since the sample size is greater than 12 there are unlikely to be any marked influences on outcome (Keppel, 1991 cited in Kerr *et al.*, 2003, p.91).

Chart 6.1: Distribution of *P*-scores for completers



The second assumption concerns sphericity. This is the assumption that the effect of independent variables is consistent at each administration of the questionnaire and for each participant (Hinton *et al.*, 2004, p.373). For each analysis the preliminary Mauchly's test was not significant ($p = > 0.05$) and thus sphericity could be assumed and the data could be used without the need for correction (Colman and Pulford, 2006, p.103).

Several MANOVA analyses were undertaken in order to determine whether there was significant variation in the *P-scores* over time and also if the demographic variables had an effect on the overall *P-scores* or the scores for each category of professionalism across each phase of the study.

Initially a one way repeated measures analysis was performed. This confirmed that across the three phases there was no significant variation in the *P-scores* (F-value (F) = 1.65; degrees of freedom (d.f.) = 2, 34; probability (p) = 0.208).

The F-value is a measure of the ratio of the systematic variation to the unsystematic variation (Field, 2005, p.323). Systematic variation is due to the effect of a variable / intervention and here represents any variance between the scores of the groups at each phase. Unsystematic variation is due to a random effect and represents the amount of variance within each group arising from individual differences in *P-scores* (Field, 2005, p323).

An F-value of ≤ 1 indicates that a variable has no effect. An F-value > 1 indicates there is a possible effect. In such cases the value of p essentially determines whether variations in scores are attributable to particular variables or have occurred by chance (Field, 2005, p.323). In calculating the probability, degrees of freedom (d.f.) need to be taken into account. These correspond to a statistical parameter representing the number of

systematic and unsystematic elements that are free to vary (Field, 2005, p.728). These values are of consequence to the computation of the results and are quoted here for completeness. The above results show that whilst the F-value is > 1 , the value of p is > 0.05 . This means that the effect of chance cannot be confidently ruled out and it has to be accepted that the variable (i.e. time) has no effect on the *P-scores*. Further analyses examined how gender, age, ethnicity and experience affected the *P-scores*.

With respect to gender:

- ❖ There was no significant difference in the *P-scores* between males and females ($F = 0.62$; d.f. = 1, 16; $p = 0.443$).
- ❖ There was no variation across the three points in time (i.e. no variation in the *P-scores* of males and females between questionnaires 1, 2 and 3), ($F = 2.38$; d.f. = 2, 32; $p = 0.109$).
- ❖ There was no significant interaction (relationship) between the two effects (i.e. no variation in *P-scores* over time due to gender) ($F = 1.49$; d.f. = 2, 32; $p = 0.241$).

Similarly, analyses on age, ethnicity and experience established no significant effect.

Further analyses examined the effect of the four demographic variables on the scores relating to each category of professionalism. With respect to Public Professionalism, for each variable there was no significant effect, no interactions between the two effects and no variation across the three phases. A one way repeated measures analysis of the scores for public professionalism also confirms this ($F = 0.41$; d.f. = 2, 34; $p = 0.66$).

On examining the effect of the four variables on the scores relating to Interpersonal Professionalism, no effect was found. There were also no significant interactions between the two effects. There was no significant variation in the scores between questionnaires 1, 2 and 3 for ethnicity, experience and age. However, analysis of gender showed what could be described as marginal significance since the p value fell between 0.05 and 0.10, ($F = 2.62$; d.f. = 2, 32; $p = 0.076$). There was an increase in scores between questionnaires 1 and 2 but this remained constant between questionnaires 2 and 3. However, a one way analysis dismisses any significant variation in the scores for interpersonal professionalism over time ($F = 1.55$; d.f. = 2, 34; $p = 0.23$).

Finally analyzed were the effects of the four demographic variables on the scores relating to Intrapersonal Professionalism. The analyses are consistent in showing that for each variable there is significant variation in the scores between questionnaires 1, 2 and 3. For example, with respect to

experience ($F = 3.43$; d.f. = 2, 32; $p = 0.045$). The scores increase between questionnaires 1 and 2 but decline between questionnaires 2 and 3.

However, for each variable there was no significant effect and no interactions between the two effects and a one way repeated measures analysis dismisses any significant variation in the scores for intrapersonal professionalism over time ($F = 4.48$; d.f. = 2, 34; $p = 0.19$).

Friedman's test

To erase doubt over the validity of the analyses of variance, Friedman's test was also conducted. This non-parametric equivalent of a one-way repeated measures analysis produced similar results (Hinton *et al* 2004 p267). Any significant variation in scores is likely to produce a chi-squared value (χ^2) close to zero.

The results of this test dismiss any variation in scores over time, across the three phases of the study ($\chi^2 = 3.217$; d.f. = 2; $p = 0.20$) and for each of the 3 categories of professionalism across time (for example, intrapersonal professionalism: $\chi^2 = 7.046$; d.f. = 3; $p = 0.30$).

Pearson's correlation coefficient (r)

This test measures the relationship that exists between two variables. The value of r may range from +1 to -1, where +1 represents a perfect positive relationship, 0 represents no relationship and -1 represents a perfect

negative relationship (Field, 2005, p.112). Table 6.7 demonstrates that for a two tailed test there are only weak correlations between variables in the majority of cases as r is relatively close to zero (Munro, 2001, p.234).

Two moderate correlations can be noted, as seen in bold. There is a relationship between gender and the P -scores obtained at the first phase of the study. The positive nature of the correlation highlights that female participants have a higher P -score than the male members of the population ($r = 0.404$; $n = 27$; $p < 0.05$). A negative correlation can be observed amongst those completing all three questionnaires. Participants with previous experience have a lower score for interpersonal professionalism at the third phase than those who have no experience ($r = -0.501$; $n = 18$; $p < 0.05$). However, these findings have not been shown to be significant within other tests and the correlations are not consistent across all three administrations thus of minimal consequence to the overall interpretation of the data. The similarity of the results between participant groups and variables further demonstrates that the data is not contaminated by response bias.

Table 6.7: Pearson's correlation coefficient

<i>P-scores</i> for each phase	All participants (completers and partial-completers)				18 participants (completers)			
	Gender	Ethn.	Age	Exp.	Gender	Ethn.	Age	Exp.
Overall Questionnaire								
Phase 1	0.404	0.217	0.017	0.024	0.315	0.119	0.098	-0.292
Phase 2	0.077	0.047	-0.155	0.051	-0.023	0.175	-0.044	-0.238
Phase 3	0.170	0.080	0.223	-0.113	0.139	0.093	0.029	-0.437
Public Professionalism								
Phase 1	0.332	0.260	0.002	0.100	0.158	-0.004	0.000	-0.285
Phase 2	0.305	0.172	-0.021	0.253	0.180	0.068	-0.034	-0.163
Phase 3	0.122	0.081	0.292	0.020	0.142	0.111	0.129	-0.246
Interpersonal Professionalism								
Phase 1	0.340	0.067	0.173	-0.008	0.375	0.063	0.335	-0.159
Phase 2	-0.151	-0.105	-0.239	-0.164	-0.117	0.278	-0.213	-0.245
Phase 3	0.249	0.095	0.132	-0.103	0.237	0.105	-0.138	-0.501
Intrapersonal Professionalism								
Phase 1	0.200	0.146	-0.274	-0.115	0.170	0.342	-0.267	-0.237
Phase 2	-0.104	0.000	-0.025	-0.051	-0.291	0.010	0.262	-0.073
Phase 3	0.031	0.012	-0.081	-0.234	-0.052	-0.005	0.037	-0.32

Cronbach's alpha coefficient

This test provided insight into the reliability and internal consistency of the questionnaire (Field, 2005, p.676). Some debate exists with respect to the accepted value, however values above 0.7 are generally considered to be indicative of a highly reliable scale (Field, 2005, p.668). For the first administration of the questionnaire Cronbach's alpha was 0.650, this fell dramatically on the second administration to 0.429. At the third administration Cronbach's alpha was 0.727. Cronbach's alpha for the first and third tools are close to the lowest accepted value for reliability and thus can be deemed reasonably reliable data collection tools. It is worth noting that Cronbach's alpha is at the start and the end of the study very similar, and thus represents standardization of the tool at two crucial points in time. It is probable that the low value at the second administration is due to the changed wording of the questions, which effectively changes the meaning (Cohen *et al.*, 2000, p.121), although extraneous factors such as mood at the time of completion cannot be ruled out (Kumar, 2005, p.157), particularly as exploration of the reliability of the three subscales across the three administrations shows high – moderate reliability (Hinton *et al.*, 2004, p.356).

The Public Professionalism scale was reliable with a Cronbach's alpha of 0.756, interpersonal and intrapersonal professionalism scales are slightly less reliable with alpha values of 0.569 and 0.579 respectively. Corrected

item statistics show that the removal of question 16 (gaining knowledge changes personal opinion) from questionnaire 3 would increase the alpha value to 0.742, thus providing a reliable tool for other researchers to utilise.

Discussion

The descriptive and inferential statistics correspond and reveal that the *P-scores* are widely distributed and that there is consistency in the strength of attitude over time and across the subsections and that the resultant *P-scores* are not associated with any demographic variable. Although no one particular aspect of professionalism is shown to be dominant, achieving technological competence is shown to be an underpinning value.

Notwithstanding the correspondence between the descriptive and inferential statistics, there are reservations with respect to the validity and reliability of this data. The sample size was initially small and further reduced by attrition. Attrition arose from students leaving the course and was exacerbated by the change to a postal survey which is known to produce low response rates (Oppenheim, 1992, p.102). This small sample affects the sensitivity and accuracy of the statistical results (Bryman, 2004, p.239). The sample is seemingly biased towards the researcher's own characteristics (white, female over 30) as the sample lacks representation by those who are either male, under the age of 30 and from an ethnic minority. Further to this, Cronbach's alpha coefficient suggests the questionnaires are not

consistently highly reliable which in turn affects validity (Robson, 2002 p.101). The unchanging scores means that some kind of conditioning effect cannot be ruled out which may have brought disinterest and lack of attention to response (Kumar, 2005, p.98).

It would be fair to view these findings with some scepticism, were it not for the fact that there is convergent validity (Bryman, 2004, p.73). Interview data corresponds with the findings from the questionnaires, which suggests that findings from the questionnaires are more of a realistic representation of development than one would assume from the data that has been presented. By looking at the interview data and what is known about the development of professionalism from the literature it is possible to explain the static nature of the *P-scores*.

Theories of socialisation lead us to assume that the *P-scores* would increase over time; however research reveals that there is a decline in professionalism following a period of socialisation (e.g. Woloschuk *et al.*, 2004; Feudtner *et al.*, 1994). The *P-scores* that emerged in this study are in contrast to what literature assumes will occur. In Chapter 3 professionalism was defined as a threshold concept, one which is troublesome and not easy to relate to, but when understood alters an individual's way of thinking (Meyer and Land, 2003, p.5). The static nature of the *P-scores* suggests that students are 'stuck' in what Meyer and Land (2003, p.10) describe as a

state of *liminality*, a suspended state of understanding. Arguably it is likely participants' understanding of the concept has not sufficiently been raised such that it brought about a change in attitude / perspective. The findings from question 25 substantiate this, and provide insight into why this should be. Scheler (1992 cited in DeWitt, 2006, p.103) suggests values are hierarchical and serve to delineate perceptions of professionalism; higher values act as a foundation to our way of thinking. Technical expertise was rated highly whilst unselfishness was ranked the lowest professional characteristic. Arguably these act as frames of reference, and if viewed in relation to Mezirow's (1997) theory, the unchanging *P-scores* are to be expected since underlying frames of reference also remain unchanged.

Evidence within the interviews supports the view that participants were intrinsically motivated and technically orientated. Transformation needs to be an assisted process (Mezirow, 1997); interview data revealed that factors within the environment and the manner in which students engaged with the process of learning did little to change frames of reference or conceptual understanding.

Qualitative data analysis (interviews)

Ten students were interviewed at the first phase of the study, and seven at the second phase. The reasons for attrition were varied, one participant was no longer enrolled on the course, and one displayed an unwillingness to be re-interviewed. The other participant was not approached out of respect for their personal circumstances. Table 6.8 outlines the biographical details of those interviewed.

Table 6.8: Biographical details of participants

Participant (P)	Gender	Age	Ethnicity	Participated in both interviews
P1	Male	≥ 30	White	No
P2	Male	< 30	White	Yes
P3	Female	< 30	White	Yes
P4	Female	<30	Other	No
P5	Female	≥ 30	Black	No
P6	Male	≥ 30	White	Yes
P7	Female	≥ 30	Black	Yes
P8	Female	≥ 30	White	Yes
P9	Male	< 30	White	Yes
P10	Female	≥ 30	White	Yes

Interview participants represented a wider cross section of the cohort. A greater distribution of age and gender could be observed, however certain ethnic minorities still lacked a representative voice. At the second phase the sample size was reduced by a third, arguably only a narrow range of opinion has been exposed. In qualitative research the sample size is less of an issue, validity comes from the quality of the interactions by way of an appropriate rich and honest response (Liamputtong and Ezzy, 2005, p.49). This was a positive feature of the study.

Although, one interview was compromised as a result of English not being the participant's first language, communication in all other interviews was spontaneous, extensive and candid. It was observed that few respondents discussed self in relation to unprofessional actions. Participants may have avoided this in order to look good, although this may relate to the reminder given about personal and ethical responsibilities as a registered practitioner at the start of each interview to investigate and report acts of malpractice. To avoid incriminating themselves it is likely they moderated some of the answers given. However this did not divert the opportunity to gain rich descriptions of perceptions, feelings and experiences, enabling the aims of the research to be met.

Central findings

The central findings of the interviews show that despite a lengthy period of socialisation participants continued to have a limited understanding of professionalism. Largely unaware of its multidimensional nature, their perception of professional practice was focused towards obtaining and demonstrating technical competence.

Initially perceptions of professionalism (gained from data at the first phase of the study) were encouraging. As a group, participants portrayed a promising awareness of its multidimensional nature, the realms of radiographic practice and consideration towards meeting the needs of patients.

Reflective of other studies, (e.g. Rabinowitz *et al.*, 2004) participants' perceptions of what it means to be a professional radiographer were diverse, but the exploration of perceptions of an 'ideal radiographer' exposed concern for humanistic and caring aspects, in association with technical aspects of role. There was recognition this warranted the possession of specific attributes to bring about a good technical outcome as well as enhancing relationships with colleagues and patients:

'[They] have to be professional, competent at what they are doing, the image taking. They have to have the technical skill; they need to be effective communicators with staff and patients. They also need to be good at problem solving, trying to get round a problem, not just with a patient but in the department'.

(Participant Number 3 (P3))

Emphasis was placed on the need to balance ones professional orientation, as this participant contemplates:

'You could be technically brilliant but without the caring ability there is no real point. There are people who are excellent at talking to people and supporting them but perhaps not so good with the technical skills'.

(P4)

The ability to view the significance of their actions from a patient's perspective was evident, which suggests that participants were in touch with public expectations, similar to those identified by Davis (2005) and Stewart-Hegedus (1999); emphasis was placed on individual treatment, privacy and reassurance, for example:

'Someone who would put them at ease, answer any questions that they might have and really make them feel like an individual, like they are cared for, that they are not just one of many patients in a waiting room'.

(P4)

Participants acknowledged that professional expectations extended beyond that of the patient. Although patient expectations were seen as paramount, *'because they are the people who we are giving a service to'*, participants expressed this was in essence an ideal, as they recognised patients were not the only stakeholders in radiographic practice. There had *'to be some kind of balance'* as the differing expectations of hospital managers and colleagues also needed to be met. Participants' perceptions of colleagues' expectations were comparable; emphasis was placed on team playing attributes. Participants believed colleagues appreciated people who *'fit in'* with the existing team and culture, who were competent, supportive, reliable and hard working in order to *'lighten the load'*:

'I think somebody that is going to be a good team player, somebody that is going to fit in well and somebody that you are going to get on well with, and somebody who is going to uphold all the particular standards of that department'.

(P1)

Perceptions of management's expectations were also similar in nature and corresponded to skills and attributes that ensured a '*smoothly oiled machine*'. Thus requiring professionals who were productive, efficient, and who upheld harmonious relationships in order to minimise problems and maximise the capacity for meeting work targets. Several participants viewed managers with contempt. Dislike was based on a perceived lack of appreciation for the context of practice and a production line mentality. Participants' comments reflected that managers' expectations went against patient centred care, which to them was important, as this quote indicates:

'Curious breed managers, I think they've got an unenviable job, some times I feel really sorry for them, other times I hate them because of the line they have to tread. I think they want efficiency... they seem to get locked into systems ... and not realise it's about emotion. Sometimes you have to stop and take on board how people are feeling'.

(P6)

By the end of the clinical year the professed orientation towards patient centeredness had begun to deteriorate. All participants became discipline centred, as thoughts and actions drifted towards meeting the expectations of managers and colleagues. Despite appreciating the need for humanism and interaction they defied this to become technical and process orientated.

Highly rated skills such as effective communication were superseded by notions of speed and efficiency:

'I have to balance it with 'are we getting less done?' 'Are people waiting for the room because I am chatting to the patient?' We might think we are dealing with patients and we've got to take a little more care. People looking at the figures might think we've done 10 when we could have done 15. I have come to the realisation that I have to be quick but I also have to do what is right, ... as long as I am not impinging on anyone waiting for the room'.

(P8)

Ideal radiographers had become those who *'don't moan constantly throughout the day', 'just get straight on with it', 'consistently getting their patients in and out.'*

Discussions on professionalism were frequently grounded in technological discourse and unrelated to patients. Questions were invariably met with responses that centred on technical competence. Below one participant considers conflicts within practice; for them this related to the use of equipment:

'I understood that the rules where you have to have a marker in the primary beam and with [digital systems] even if you have a correct marker it may get collimated off and there are issues of whether to open up the cones'.

(P9)

Typically personal development needs echoed an orientation towards gaining more technical knowledge, in this example a participant has concerns over the use of a Picture Archive Communication System (PACS):

'I suppose it would be nice to find out more about PACS and what happens with it ... if anything went drastically wrong you would be completely stumped'.

(P7)

Consistent with the rhetoric of radiographic literature (Niemi and Paasivaara, 2007), technology was perceived as a tool for performing tasks and there was a tendency to view patients as the object rather than the subject of their action and as a means of achieving an outcome:

'I think it's quite nice when you can actually achieve an image from a patient, especially if they didn't want it and you can get them in the position when they didn't want to. That's quite good because you can get the image that you need and they can go on and get the health treatment that they need'.

(P8)

Participants showed a strong awareness of imaging standards; several participants strived to gain a *'text book image'* and were critical of their failure to do so. Many expressed anxiety about their competence to judge the standard of their image by deciding if *'it's good, acceptable and not acceptable'*.

For the majority of participants the term 'professional' prompted descriptions of attributes and values which Van de Camp *et al.* (2004) categorise as public professionalism. Clearly there was awareness of accountability, the need for expertise, competence and standards; however these overwhelmed the interpersonal elements of professionalism, originally in the minds of participants. It can be concluded that participants developed a narrow vision of what it means to be a professional. Accounts relating to professional responsibilities fail to go beyond immediate imaging acquisition and interactions with patients. Obligations to the development of the service and the profession are not asserted. Upon qualification participants consider

there will be little difference in their role. Expected changes related to conditions of employment rather than practice:

'There will be a different work pattern; you will be expected to do nights and on-call eventually. I suppose the basic will be the same really'.

(P8)

Furthermore the lack of discussion relating to development of personal attributes suggests a limited intrapersonal perspective and validates the conclusion professionalism is insufficiently understood.

Analysis of the results of the questionnaires suggests an equal commitment to all elements of professionalism, however the interviews contradict this. Other studies note the existence of 'two versions' of the phenomena. Maben *et al.* (2007, p.103) cite Goffman's (1959) concept, suggesting a "*front stage*" illusory reality and "*back stage*" reality. Whilst Melia (1987, p.161) describes this as "*segmentation*" which represents a division of values. Assuming a similar situation exists here, the *P-scores* arguably represent personal beliefs, whilst the interview data relates to values espoused in practice. Both sets of data suggest that participants have not progressively developed professional perspectives appropriate to their role. What

emerged from the interviews exposes reasons for this and similarly made clear the reason for the contrasting versions of professionalism.

Personal frames of reference

Frames of reference characterise personal knowledge, attitudes, beliefs and expectations. These act as a foundation to the way experience is interpreted and assimilated. A powerful influence on perceptions, they predispose us to a certain course of action and direct and restrict what is learnt (Mezirow, 1997). It emerged that key frames of reference were incongruous with professional ideals and strongly orientated towards self and technology. Decisions to study radiography were intrinsic; radiography was attractive because it offered a career structure, advancing technology, specialist role development, opportunities for travel and job security. These attractions characteristically reflect the findings of previous studies in radiography and other healthcare disciplines (Vosper *et al.*, 2005; Coombs *et al.*, 2003).

Comparable with the work of Vosper *et al.* (2005), the choice for many rested upon what was seen as radiography's unusual capacity to combine two underlying personal desires, i.e. to work with technology and people:

'I'd originally decided to go down one path which was biochemistry then I realised radiography was the thing that met requirements of science with people, in a caring kind of way'.

(P9)

Whilst participants spoke about wanting to work with people, few explicitly expressed the desire to care or help others, nor had they been encouraged by the significance of the role they would perform within healthcare. This is inconsistent with other research which portrays 'caring' aspects as distinctive reasons for entry into radiography (Vosper *et al.*, 2005; Coombs *et al.*, 2003), and suggests social contact is desired for ones own emotional and personal well being since the association with care is deficient.

Cognitive understanding of a profession is crucial to the development and maintenance of professional status, and understanding professionalism (Swick, 2000). Transformational and socialisation theories assume that students will undergo some kind of development which leads them to identify with and take ownership of such characteristics in practice. In this study this was not the case. In spite of the unanimously positive perception that radiography was a profession, participants' definitions demonstrated limited knowledge of its defining features. This concurs with and illustrates Munro *et al.*'s. (2005) findings, that being part of a profession does not promote an instinctive ability to define such characteristics.

For the majority, perception was centred on specialist training and the possession of specific skills. Others based their judgments on tangible features, e.g. that employment alongside other professional groups established radiography as a profession. Some participants admitted to being unable to define a profession. Attempts to explain how a profession differed from an occupation were brief and unforthcoming. As shown below, not only was there a lack of discernable knowledge (as differences apply equally to both an occupation and a profession), but terms of reference in the majority of cases related to competence and outcome:

'It is something you need to be highly trained for, you do need to be qualified and it's not something that everyone can do'.

(P2)

'I am slightly unsure about the difference between the two. I used to class myself as a professional in what I did before ... I cared about the results and my performance'.

(P9)

Some participants were able to offer a distinction which exposed other defining characteristics such as existence of codes of conduct, and regulation but there was some doubt as to the certainty of their belief. Many were of the assumption that professionalism meant following rules:

'I think professional is adhering to the protocol, the rules, as well as being technically competent, and behaving in a manner that does not bring the profession into disrepute'.

(P10)

Awareness of the codes of conduct, their content and significance in practice was lacking which coincides with other research (i.e. Yakir and Glick, 1998; Miller *et al.*, 1992). Few claimed to have read them, and those that had regarded them as common sense:

'To be honest we read it at the beginning, we took away the things that we were supposed to take away, radiation things like that, but I haven't been back to it at all'.

(P7)

'I think I probably looked at it and it all seems fairly reasonable. I don't really remember what the things are but I'm sure it's about reporting things if they go wrong and not drinking while you're on duty'.

(P9)

Participants claimed personal philosophies, religious beliefs and their upbringing were more predominant in guiding their actions:

'I suppose my upbringing and being in boy scouts and that kind of thing, I promise to do my best'.

(P9)

'I'm a Catholic, so basically just treat others as you would want to be treated'.

(P7)

There was an underdeveloped understanding of their role in which the patient is overlooked as a central focus. At entry all respondents admit to having a minimal understanding of the expected role and scope of practice. Such naivety is not uncommon (Karaoz, 2004) and like other students, participants had envisaged a simplistic, functional and technological role *'taking x-rays'* (Coombs *et al.*, 2003). Several spoke of a realisation that radiographic practice went beyond image acquisition, with complexities and circumstances of practice not previously taken into account. Commencing clinical placement *'was an eye-opener'* and many had been unprepared for what they would encounter and be expected to know and do.

Unexpectedly the lack of appreciation of role was also true of those who were previously employed in the NHS. Experience did not widen their knowledge of practice:

'Having worked in [name of department] I saw radiographers. They seemed to be taking patients in, taking films then off they go, but I didn't have any complete idea about what you had to do. It's not just about taking pictures you have to talk to them sometimes. If you are going to do a shoulder you have got to know where the joint is, how much you need, how much you don't need. ... I didn't know the extent to which we would be required to know these things'.

(P7)

For many, technology and the resulting image provided attraction and inspiration:

'I'm fascinated by the images and just think they are amazing, it's basically wow!'

(P8)

'I think I would like to do something, hopefully a combination of CT and MRI because someone was telling me how they are taking the images from both sets and using them together and I think that would be really interesting'.

(P3)

Throughout the year the majority of participants continued to derive satisfaction from the use of technology (rather than the interaction with patients). Fulfilment became underpinned by their aptitude for using it to produce high quality diagnostic images, as demonstrated below:

'[I like] producing good images of diagnostic quality, if some one says 'that's good, I can see something there' I know I have done a good job'.

(P7)

Incoming frames of references were not underpinned by altruistic intentions, and the lack of knowledge regarding professional characteristics, expectations and codes meant that behaviour arose from their own contrasting values and assumptions which notably had a strong influence on development. The technological focus partly predominates because it is solidly associated with motivations, expectations and self fulfilment. Moreover, interest is sustained through active engagement in an environment where practice is governed by a demand for diagnostic quality and technical expertise, thus accentuating its prominence. Frames of reference are not easy to change (Mezirow, 1997). As discussed later, transformational learning processes failed to modify these, thus in an unaltered state participants were trapped by their initial perspectives which influenced attitudes towards learning and their interpretations of practice.

This led them to reject aspects of practice which meant there was no further appreciation of the concept beyond the use of technology.

When technology controls practice it creates a split world, and as O'Connor (1996) anticipated, technical expertise became more important than patient expertise. O'Connor *et al.* (2000) offer a further explanation as to why psychosocial and humanistic dimensions of practice have progressively become insignificant. They suggest cultural immersion causes practitioners to over identify with stakeholders. Applying this theory to the evidence, it is not unreasonable to assume that the initial appreciation for patient expectations represented opinion based on own personal experience as an 'outsider'. Subsequent engagement in activities prompted participants to abandon their 'outside' perspective and identify more with the opposing 'insider's view.' As the desire to care was not a strong motive for entry it is plausible that the ensuing concern for the patient lacked durability.

Relationships

Good relationships with staff play a central part in the development of professionalism. Mutual friendships built on trust and respect in an environment which supports the learning process increases the capacity for learning thus aiding the process of transformation which ultimately strengthens professional identity and level of professionalism (Johannson *et al.*, 2006). The data however reveals that relationships with staff were

superficial and participants' actions were structured towards fitting in, and complying with customary expectations of speed and efficiency.

Several participants enthusiastically recounted how the friendly nature of the staff and the rapport that had developed had engendered feelings of equality, involvement, trust, respect and being a member of staff; characteristics associated with concepts of belonging (Levett-Jones *et al.*, 2007). For example:

'It's a very welcoming environment. They are all so friendly and you do feel part of the team, you get involved. ...everyone mucks in together which makes you feel part of a big radiography family'.

(P2)

Others however encountered radiographers who displayed an unwillingness to teach and engage with students. One participant reported extreme hostility and isolation, highlighting factors which had led them to seek alternative placement:

'[At my new clinical site] we are treated the same and I know at tea break they will speak to students normally as if they were a member of staff, whereas at the other place they would not even sit with us. You would walk in and say 'good morning' and they would just ignore you'.

(P1)

Several recounted how acceptance as a team member had been a gradual process. It was acknowledged that as students they initially *'have a certain place'*, until they had been legitimately accepted. Social acceptance was not granted before a display of competence and compliance with cultural practices:

'One of the people in charge can be quite scary but I just think she likes people who work. If you work you are alright, if you're not then she tends to give people a hard time'.

(P8)

The accuracy of participants' perceptions of themselves as valid team members is questionable. Examples of hostility similar to those reported in other socialisation studies (e.g. Hoel *et al.*, 2007; Windsor, 1987) ran throughout the discussions, and were contrary to declared happy accounts. Prevalent was the existence of prejudice towards age, education and

student status. One participant illustrates an attempt to reinforce hierarchy and undermine confidence. They describe how a younger radiographer had gone about introducing themselves to a new radiologist, and reveals how they overstate their status in a bid to distinguish themselves from students:

'... and this young radiographer says 'my names so and so' and he shook hands and said 'we never met properly the other day' and then he said 'I am a radiographer and not a student'. I thought that was a silly thing to say... and I said 'my names [X] and I am the student', and [the radiologist] just laughed. ... I think I was a bit too confident for them and I think there was a bit of jealousy going on'.

(P6)

Participants' cheerful idealistic perception of themselves as integrated members of the community amounts to a natural state of self preservation. This portrays the need to be seen to belong more than the actual state of belonging. Evidence that genuine membership does not exist is further substantiated in the behaviour of the students, as behavioural consequences of diminished belongingness are observed. Participants admit to affiliative behaviours as described by Levett-Jones *et al.* (2007) and similarly seen in the work Feudtner *et al.* (1994). Participants modify their behaviour and even replicate actions which they acknowledge to be deviant practice:

'Staff told me I should talk to [patients] less, don't engage too much. I sort of go through the process. ... but I try not to give any answers back and make it any longer'.

(P7)

'I think technically I still try and do the best I can. It's hard, I wouldn't say I lower my standards but I definitely change the goal posts a bit. Say I'm in one area and they are not identifying their patients when they come in. I follow their lead, and afterwards I think to myself 'it wouldn't take me five seconds just to check that would it?' But they don't do it ... I'm more of a fit in kind of person'.

(P9)

Corresponding to Feudtner *et al.* (1994) and Satterwhite *et al.* (2000) poor professional behaviour is seemingly tolerated, and like Hoel *et al.* (2007) excused and defended. Pressures of work, lack of training and personality traits form the basis of their rationalisation.

Participants reveal some hesitancy with respect to reporting unprofessional practice due to their hierarchical position or because they wished to avoid conflict or betraying loyalty. Comments in the questionnaires support this, which also concurs with Feudtner *et al.*'s. (1994) findings:

'I can't say I liked how he behaved. I think he was stressed that day... it had just been one of those days that's really horrible or busy. They were a lot bigger than me, a lot scarier. Something is in the back of your mind but at the end of the day I am still a student and not qualified'.

(P8)

A lack of trust was evident; apprehensive towards approaching staff, many were selective in whom they spoke to, to discuss their concerns or progress:

'I didn't know who I could trust so initially I just didn't really say anything to anyone for a bit. I talk about things with our clinical tutor'.

(P9)

Within other socialisation studies in healthcare, cultural practices also place emphasis on work, speed and efficiency (e.g. Maben *et al.*, 2007; Kelly, 1998). Comparable to such studies, initial isolation forced students to maintain the status quo by assuming the role of worker and accepting the group rhetoric of *'getting them in and out'* to avoid the risk of marginalisation. Participants reconcile their actions as a means of meeting waiting time targets:

'Sometimes you would like to have a bit more time with the patients so that you can communicate with them, but there are times when it is unrealistic because there are a lot of examinations to get done and I suppose the best way to keep good patient relations is to be seen as soon as they can be'.

(P2)

The focus on work meant little importance was attached to educational processes and personal development beyond practical aspects of role, by both parties. The comments below show that to maintain productivity, discussions about practice were discouraged by staff and how identity as a worker led one participant to avoid conversation:

'If you are with certain radiographers, they would frown on it ... the ones especially with many years of qualifications don't like this. I suppose it was the way they were taught, 'you're here to work, get it over and done with'. A lot of the time we are [saying], 'I collimated too much or too little and cut off this'. It does restrict you, you have to keep quiet then save it for later'.

(P7)

'I don't tend to push to engage in a discussion about radiographic practice or anything else because I'm busy getting through what's in

front of me rather than what's behind me, it's the workload. Rather than thinking they won't want to talk about it or anything like that it's me not wanting to talk about it really'.

(P2)

Survival in a new and busy environment often undermines the ability to sustain ideals (Maben *et al.*, 2007). Radiographers operate in a climate of managerialism; their actions reinforce prejudice and unequal status. This led participants to exploit means of acceptance which is disempowering, leaving participants vulnerable to coercion (Levett-Jones *et al.*, 2007). Coercive environments make practitioners feel uncomfortable about challenging actions and behaviour (Feudtner *et al.*, 1994). Hence participants' reluctance to report unprofessional practice is understandable. Radiographers are expected to have the capacity to self regulate in order to ensure expected standards of care are met (HPC, 2008a). This raises questions about levels of understanding and ability to judge standards of practice, particularly when reluctance to challenge has been correlated to low patient advocacy (Ahern and McDonald, 2002).

Participants sacrifice their own standards without question. Speedy practice with minimal patient interaction has superseded previous values held about good and extended communication. Kelly's (1998) exploration into the preservation of moral integrity offers an explanation. Her focus on moral

distress illustrates how nurses in practice adapt / cope with loss of ideals, which depends upon original expectations and aspirations in contrast to the reality of practice. What is evident is that participants do not struggle to preserve their values. Participants rationalise their behaviour but the more profound characteristics of moral distress, such as self blame and disillusionment at not being able to meet patient expectations are not expressed. This corroborates that interest in the patient was nominal and that assumptions about professional practice have not been revised, nor have participants been empowered to become autonomous thinkers.

The ineffective supervisory behaviours displayed led to attitudes and behaviours that immediately weaken the development of interpersonal professionalism. Radiographers own actions fail to portray humanistic values, concepts of care, respect, equality and team work. Johansson *et al.* (2006) note how visible reinforcement is essential to maintain humanistic values and believe that care is reciprocal. How you care depends on how you were cared for, and if negative, likely to breed indifference towards these values. Furthermore, the consequence of speed and efficiency has lessened patient contact. Bégat and Severinsson (2006) observe that interactions with patients intensifies relationships, sensitises students to human needs and improves understanding of the psychosocial aspects of disease, making interpersonal aspects of professionalism more salient. It is conceivable that without such foundations, interpersonal aspects of practice

have become devalued. Interpersonal communication is often considered a basic requirement of professionalism (Eraut, 1994, p.45). The consistent high ranking of good interpersonal skills may therefore represent what is assumed to be necessary rather than a true indication of the value held.

Transformational processes

Being aware of and receptive to professional expectations is not instinctive. Professionalism develops as a consequence of engagement with a series of learning processes which draw attention to and transforms opinion of what it means to be a professional. Transformation is reliant upon the combined existence of 3 key elements: Experience and discourse act as the foundation for critical reflection which is a cognitive tool to integrate new knowledge into existing perspectives (Mezirow, 1997). Critical reflection on practice allows students to question their values and assumptions and revise these on account of new knowledge and exposure to alternative opinions. Subsequently it helps students act on their insight and arrive at an informed decision more autonomously. Through reflection it is possible to generate awareness of self and personal learning needs and improve competence (which will improve patient outcomes). Moreover it assists to produce better understanding of role and the values that underpin it, cements a professional identity, and generates a self directed learner, reactive to change and uncertainty, and capable of continued learning (Mezirow, 1997).

The extent to which it is achieved depends upon the social context and the existence of a favourable learning environment (Brockbank *et al.*, 2002b, p.21). Preceding discussions reveal that the essential factors necessary for transformation are lacking. Relationships lacked trust, friendship, respect and mutuality which are the connective 'glue' that initiates the openness necessary to explore and understand professional practice (Gillespie, 2005) and there was no freedom from coercion (Grabove, 1997). Not surprisingly the data reveals that these less than optimal conditions had a cascading effect and significantly impacted upon the 3 key transformative elements. Notably limited experience, discourse and reflection fuelled immersion with technological aspects of role, consequently bringing little change to perspectives on professional practice.

The opportunity to engage with professional practice in its entirety is an essential part of professional development. Familiarity with a variety of tasks and situations grants greater depth of understanding and enables students to assemble ideas about the significance of their role and expected behaviour (Eraut, 2004). For most participants the range of experience gained was limited to acquiring and processing images. Only a handful recounted experiencing professional activities beyond this daily routine. These amounted to CPD study events and undertaking quality assurance tests on equipment. It was evident that over the year levels of autonomy had increased, participants were being given a greater amount of responsibility

and allowed to practice independently. However, many expressed a desire for higher expectations to be placed upon them; one student suspected the curtailment of development arose from the fear of litigation:

'I don't think they will give you responsibility, they give you a limited amount once I think they trust you. They will allow you to take images yourself, there is a little bit of freedom there. ... I think they are a little bit scared I think there are all sorts of come backs for them legally so they will say to themselves 'no you're only a student you can only do this' which is a bit demeaning. ... You have got to hold back a bit and that was very hard to start with'.

(P6)

There was evidence that where responsibility had been given, motives were not always in the interest of the student. Several students noted how autonomy and responsibility increased when departments were under resourced. Others noted how this often destabilised and conflicted with their position as a learner:

'In one respect you think oh wow! They must think I'm good if they're letting me do this and the other side of you is thinking well I'm not actually learning. They are not teaching me because they feel I am a radiographer. You are not progressing through the knowledge and the discussions you are having with them because you are on your own'.

(P3)

The activities are based around routine in an environment which adopts a functional approach to meeting the needs of the organisation. Brockbank *et al.* (2002b, p.22) note this reduces time for, and interest in, deliberative discussions and is likely to limit the amount of information that is shared and received; regrettably this was the case in this study. Participants note that preference was given to discussing technical aspects of role and was practice centred, based on the current examination being undertaken, protocols and radiation dose. Group deliberations were infrequent, occurring mainly *'in the viewing room when you have got slack times'*.

Discussion with respect to personal development in other areas of practice was rarely encountered, particularly the topic of professionalism which was *'never specially spoken about'*:

'I just think they assume you know what you are doing, or you pick things up as you go along. No one really sits down and talks about things'.

(P8)

Noticeably a resistance towards open discussion existed within a culture that opposed challenge and acted defensively. Participants state that discussions relating to personal anxieties about professional practice were instigated by themselves. One student noted how exploration of their own practice often exposed weakness in the practice of others, which staff guarded themselves against. A similar state of unease amongst imaging staff was reported by Sim *et al.* (2003):

'People aren't prepared to open themselves up. ... People are very cautious because they don't want to leave themselves open to the charge of not being very good at their job. ... I bring up things that they don't want brought up. ... I become their conscience and they don't particularly like it'.

(P6)

Another participant reveals that there was an explicit understanding about questioning; their desire to seek clarification of their performance was met with the following response:

'One of the members of staff said it wasn't really a student's place to discuss what was written'.

(P2)

Throughout the course all students are encouraged to retrospectively reflect on their performance and on the feedback they receive from supervising radiographers. The documentary reflection / feedback process was a source of contention. This symbol of student status conflicted with the role of worker and seemingly brought disengagement with the process. For many, documentation brought an unnecessary pressure and was identified 'as *another thing to have to do*'. Several admitted giving little consideration to what they wrote; they were '*pretty much filled out in a rush*'.

Although participants did not explicitly admit to sanitising their reflective reports, there appeared to be a greater commitment towards documenting positive thoughts on what they had achieved and how they felt:

'If you have had a good week or you wish you had done something, or done something that you've been happy with then you think about it a bit more'.

(P8)

There was evidence that participants were to some extent equally guarded about sharing thoughts with supervising radiographers. Negative experiences with staff and the fear of harsh judgement had, like the nurses in Windsor's study (1987), led participants to favour interactions with fellow students who they claimed were supportive, honest and less intimidating:

'It's been easier with the students because you want to find out and they are not going to judge you'.

(P7)

As shown previously, participants were dissuaded from engaging in discussions with other students. In addition, differing placement locations limited contact with other students with whom they had a good relationship. This meant that interactions were centred around social activities. Whilst these were outside the context of practice the benefits to professional development were noted as participants became aware that through this they were *'opening their mind to different opinions'* and *'coming to a consensus of what is right and wrong'*.

Disengagement with reflection also emanated because its significance in terms of development was not appreciated on a personal level or by staff. Very few participants appreciated the purpose and value of reflection. In this instance it was seen as an academic exercise:

'To write it down doesn't help me, obviously I see that as something that is going to be stored away for someone else to read. I see it actually as helping the university not helping me'.

(P6)

Supervising staff were perceived to be inattentive towards providing constructive feedback which accurately reflected ability:

'I think to start with I would go down and look – they think this, they think that, but generally I assume it's a drag for them to do it and I think it is a drag for me to make them do it. I read the comments, that's all. People often write the same thing because they are often stuck, I feel the big thing is getting them to sign it'.

(P9)

Although most participants declared they read the written feedback provided each week, the nature of the feedback, its content and wording made them sceptical about its validity. On this basis participants took little notice of it:

'If I thought they were filling it in truthfully about me then it is helpful but I find that they are not. I think they are embarrassed not wanting to be honest, because I can't think of one bad remark and there must be times when they want to put bad remarks in ... no one is a saint'.

(P6)

Failure to provide negative feedback on clinical assessment is not uncommon. Duffy (2003, p.32-33 & p.63) discovered that nursing staff were prone to giving students the benefit of their doubt and shied away from failing them through fear of confrontation and the possible threat of external scrutiny with respect to their ability and actions. Although speculative, it may be that similar feelings are shared by radiographers, particularly as a culture that is averse to challenge seemingly exists. Any negative feedback amounted to *'one or two lines and that's it'*. Participants claimed these related specifically to radiographic techniques and pace of work. As is reported in other studies (e.g. Daelmans *et al.*, 2006) the practice of following-up of written feedback with a verbal discussion was not forthcoming unless requested by the student. However when this did occur it was considered helpful to development:

'I had one occasion where someone sat down and went through it with me and that was useful. ...There was something that I hadn't ever thought about before and discussed it with them and took something away'.

(P2)

Students identified that the main way of learning came through observation of others, mainly radiographers:

'I am more watching the behaviour of other staff members, qualified radiographers. If what you're seeing represents good practice I would try and emulate that. I would try to weed out any bad aspects. I would think I've seen it done like this and it seemed to go very well and it didn't seem to upset anybody so I'll do that'.

(P2)

The evidence suggests that organisational objectives are not compatible with learning, but are focused towards practical competence. Educational objectives are in competition with and lose out to organisational objectives. Little attention is paid to the development of self or illuminating broader professional roles and issues. The combination of restricted experience, discourse and feedback directly confines the concept of professionalism to one context and that of immediate practice, which does not exemplify long term professional responsibilities. This reinforces the opinion that technical aspects of practice are *the* most important aspects of practice, and structures learning towards the improvement of performance at the expense of other aspects of practice. This explains why participants analyse professionalism and evaluate their development in relation to this, which means they do not sever connections with the status of a technician.

The reticence observed in both participants and radiographers meant opinions were not brought into a public arena, which immediately impeded

the reflective process (Brockbank *et al.*, 2002b, p.24). Cranton (2002) notes it is impossible to reflect if issues are not explicitly articulated. The reported lack of group deliberation and openness presents the possibility that in practice participants will not have shared their opinions and will not have been exposed to alternative points of view. This means that participants would be unable to validate and revise their opinions, and processes of reasoning in relation to actions will not have been made apparent or realised. Although reflective discourse occurred between students, it could be argued this too has a limited transformative capacity as discussions tended to occur outside of the immediate context of practice with those who themselves have limited experience and may hold similar frames of reference.

The unaccommodating clinical environments seemingly place onus on students to gain awareness of professional expectations through personal reflection. When reflection becomes an individual activity development is stifled for a number of reasons (Clouder, 2000), and the negative consequences of this are observable. Personal reflection is prone to subjectivity and self deception which participants admit a tendency towards. In addition, there is a tendency to direct reflection towards minor rather than broader professional issues and create meaning in relation to own frames of reference (Clouder, 2000). Discussions on development and readiness for

'qualified' practice provide evidence of this. Development in relation to communication and competence to practice were consistently cited:

'I hope I've got better in dealing with patients. I'm producing more consistent work, better work and in shorter times and asking less'.

(P7)

This highlighted that participants focus their development on day to day elements of practice. This matches Argyris and Schön's (1974 cited in Brockbank *et al.*, 2002a, p.12-14) model of single loop learning. Reflection focuses on the achievement of personal objectives and immediate improvement of task rather than improving oneself or personal situation, which means underpinning values are not modified. Participants admit failing to attend to feelings, which act as a catalyst for greater introspection and transformation (Brockbank *et al.*, 2002a, p.12). Only one participant admitted learning through inappropriate personal actions:

'You think you know every situation you come across and you don't. ... A colleague came up to me and said you should have never have done that and I was gob-smacked because I thought I'd done really well. ... I didn't understand, but she explained anything could have happened and I was really grateful for that and I've never gone back and done that again'.

(P6)

Elsewhere discussions on professional development excluded self. Participants were very critical of radiographers' practice rather than their own. This might of course be a protective mechanism but MacIntosh (2003, p.730) noted that a lack of reflection combined with a focus on technical aspects of practice left nurses "*assuming adequacy*" with diminished awareness of personal competence. For that reason it is not inappropriate to assume that participants lack an appreciation of the need to continually develop themselves as a person and suggests that intrapersonal aspects of professionalism are possibly not endorsed or sustained.

It is evident that attitudes and practices failed to promote and bring together key transformational processes. The content of the discourse indicates ineffectiveness in developing professionals who recognize the principles of professionalism. It would be unfair to suggest that participants did not develop their understanding of professional behaviour; however this was derived through passive means. Observations of positive and negative role models certainly played a part in exposing aspects of public and interpersonal professionalism. Although learning came predominantly through the observation of negative rather than positive practices, participants had come to learn appropriate ways to interact and show respect for others:

'I have seen people just fling a gown at patients and say put this on but they don't really explain why. I've seen some examples of behaviour that I would definitely not want to do myself, [for example] referring to patients by their examination instead of their name when you are in ear shot of them'.

(P4)

Both data collection methods reveal awareness of, for example, confidentiality, dress, boundaries and limitations of practice but these are not universally appreciated and arguably represent a shallow understanding. Figuratively these known aspects are individual pieces of an incomplete jigsaw, insufficient in number to expose the full picture of what it means to be a professional. Whilst participants may be aware of appropriate actions and values, they have taken them at face value and linked them to existing frames of reference. This has consequently failed to raise awareness of the holistic nature of the concept, and long term responsibilities. The difference between the data from the questionnaires and the data from the interviews may not represent a division of values as Maben *et al.* (2007) suggest, but a division of understanding. The *P-scores* represent an abstract understanding of the pieces, the interview data illustrative of disordered and incomplete connections. Disconnected elements do not generate the "*germ cells*" necessary to direct actions and analytical thought processes which in turn enhance theoretical

generalisations and integrated ways of thinking (Tuómi-Gröhn and Engeström, 2003, p.29).

Identity

Identity represents what it means to be and act as a professional in the context of practice and is established through one's personal beliefs system.

The development of identity is linked to discourse and reflection which together create a personal consciousness of roles and associated values such that they become part of self and are integrated within thoughts and actions (Öhlén and Segesten, 1998). It is clear that participants' identity remained affiliated to technical aspects of practice. On the surface this can be related to an unfavourable and restricted learning environment which would involuntarily manipulate identity. MacIntosh (2003) notes that role and status played a part in how nurses re-examined their identity once qualified. Role and status featured here but in a very different identity forming context. It emerged that some participants were 'holding back' from developing an identity due to their aspirations to be an advanced practitioner; this had a detrimental effect on transformational learning.

Earlier it was established that the role of the radiographer was not fully created in the mind of the participants prior to entry, and not surprisingly the realities of practice conflicted with participants' expectations. The discovery that their perceptions were not consistent with reality was for some a

pleasant surprise which cemented the attraction. Conversely there was disappointment that the role had failed to meet expectations. For example, one participant expected more involvement with technology and greater exposure to trauma cases. Some were unaware of restrictions to their practice, and greater levels of autonomy were expected.

The degree to which people adjust to such dissonance depends upon the importance attached to the expectation (Ashforth and Saks, 2000). Here a participant expresses disenchantment at not being able to give a diagnosis as they had anticipated. In this instance disappointment was short lived with little impact on enthusiasm for the role, which demonstrates the capacity to overcome the 'reality shock' and adapt their preconceived ideas:

'You are more providing for a clinician and I find when patients ask you things about their X-rays not being able to tell them, even though you know. I find it a bit frustrating at times but that is quite a minor thing in the scheme of things'.

(P4)

Despite initially having a naive view of the role, radiography was widely viewed as a long term career. There was a desire to progress and career aspirations were quick to be developed, which remained unchanged throughout the year long placement. Remarkably after their first clinical

placement, the majority foresee themselves undertaking a specialised and extended role working in a particular field, for example image reporting, Computed Tomography and Mammography. These findings are consistent with Ewens (2003) who reports that in spite of no previous 'hands on' experience of such roles, nursing students similarly envisaged themselves in a specific / advanced role. Ewens (2003) links this with marketing, and since current radiography recruitment strategies reflect the opportunity for role extension and practice developments, it is not surprising that participants appeared aware of this.

Specialising in a particular field was seen as *'the only way to go these days'*, and predominantly based on a desire to use more advanced technology, the need to be stimulated by more complex work and the need for more autonomy:

'I think I would like to specialise. Ultrasound seems quite interesting to me at the moment, just for the fact that you are an autonomous practitioner and you report what you see. It's a bit more independent rather than being part of a chain'.

(P4)

Ewens (2003) considers such a predetermined outlook has several notable consequences, all of which are evident within this research. Firstly it

changes patterns of learning as students take opportunities to develop self in line with anticipated role (Ewens, 2003). Anxious to progress and aware of the competitiveness, a few participants claimed to have shown an obvious interest in their selected field in order to secure the opportunity for development. Developing a keen interest in a specific area prompted strategic learning actions in an attempt to accommodate personal preference:

'I try to get myself involved with consultants and radiologists. There is a guy at [my placement hospital] he does a lot of reporting. I like sitting with him, seeing what he is doing with reporting and then get into what he is saying about reporting'.

(P6)

When role contrasts with self image, expressions of frustration are likely (Ewens, 2003). Those participants keen to advance were negative about their development so far and considered that the BSc. course restricted their development and viewed it as an obstacle or rudimentary stepping stone to achieving specialisation. Having to anecdotally wait 2 years after qualifying to assume such a role, was considered by a few participants to be an unnecessary obstruction:

'I won't listen to people who say you have got to wait two years before you can [specialise]. I'll always be saying 'no I only need a year and be going on'. It probably sounds a bit cocky but I think I've got the life skills'.

(P6)

Whilst one participant's reason for specialisation seemingly echoed others' desire for autonomy, veiled motives linked to role status began to emerge:

'Assuming I stay within radiography, then ultrasound, where you have more responsibility, closer to medicine basically, where you are doing more, not just taking pictures and people don't tell you what to do. ... When you see people doing it at a very basic level you think 'I don't want to be associated with these people in this profession', but when you see the advanced practitioners and the reporting radiographers and all the people doing the high levels of CT, MRI and ultrasound you think that its interesting and challenging'.

(P9)

The role of the 'general' radiographer for which they were being prepared had lost its desirability, and was judged to be subservient to that of other specialities and disciplines. Others too consider radiography has become less attractive and *'want to be more than a basic grade radiographer'.*

Participants had come to see their work in relation to the position they hold within the organisation. This represents a bureaucratic perspective whereby attention is given to rank rather than the task being undertaken (Simpson *et al.*, 1979, p.148). This notion clearly emerges in the thoughts of another participant who is ready to change their opinion about disliking an aspect of practice if the opportunity to work in the same area practicing under a designated specialist role arose:

'Well I can say now quite categorically that I don't particularly like screening unless I went in to specialise somehow, say in Bariums. I wouldn't mind doing that. I wouldn't particularly like to do generalised screening'.

(P6)

Hence the desire to specialise was underpinned by feelings of subservience and thus a need for acceptance. Comparable to the findings of Lewis *et al.* (2008), several participants at interview and within the questionnaire expressed how hierarchy and patriarchy were strong forces and reported feeling subservient to radiologists. This seemingly arose from the condescending actions of radiologists who ostensibly reduce levels of autonomy by overriding independent judgements and show indifference to some grades, as these quotes exemplify:

'There might be the clinical indications for a radiograph which I don't think are up to scratch and you'll say 'I don't think it should be done', but the radiologist says 'just do it' and you feel unhappy with it'.

(P2)

'I always found that the radiologists always looked at the more qualified ones, who did DSA and things like that. They would call them by name and the others they would not acknowledge them. I used to find it very odd'.

(P7)

Lewis *et al.* (2008, p.94) illustrate that such “*professional abuse*” not only proliferates a lack of understanding but also discourages a commitment to professional values and ethical conduct. Exposure to such actions may explain why the characteristic of showing equal respect to all was progressively ranked lower across the 3 phases.

It emerged that role dissonance and career aspirations generated resistance towards developing an identity. Even before they possessed knowledge and relevant experience some participants began to see themselves different to others. Personalised descriptions of themselves as a ‘*bog standard radiographer*’ shows a condescending attitude towards the

work they do and a negative self image. A state which Lewis *et al.* (2008) associate with feelings of subservience.

Similar to Melia's work (1987, p.102) there is the "*notion of transience*".

Melia (1987, p.117) reports how student nurses on short placements perceive that they are "*just passing through rather than settling down*", which meant they could escape long term professional responsibilities.

Melia (1987, p.104) notes that to get through, the nurses only needed to 'get on'. The keen desire to specialise presents a similar situation. 'General' radiography is merely a means to gaining qualifications for another job. It seems likely that participants do not see themselves in this role and defend against developing an identity by isolating themselves from certain aspects of the role and focusing on their own interests and desire for autonomy. However, this potentially decreases the development of knowledge and skills as learning becomes focused towards an ideal rather than reality, which in turn influences how role is performed. Work as a 'general' radiographer permits progressive adaptation to new roles and increases responsibilities which collectively opens up opportunities for the much desired autonomous practice. As a consequence of their misguided assumptions about advanced practice, the significance of the transitional post qualification period was also being overlooked.

Adoption of a bureaucratic perspective prompts the perception that respect and status arise through technical competence and possession of knowledge rather than good interpersonal skills, clinical acumen or the application of professional values. Observations of radiographers '*moving their way up, doing all the extra courses*' is a common erroneous assumption (Snaith and Hardy, 2007). Participants lack awareness that advanced practice demands more than high levels of knowledge, but a wider range of attributes and skills and a greater sense of professionalism in order to lead and develop practice and service (Snaith and Hardy, 2007). Seeing advanced practice in terms of specific knowledge and use of advanced technology dismisses the significance of personal qualities and abilities that are required for such advanced roles. An identity based on 'doing' rather than 'being' may explain why participants are not introspective, since they fail to associate personal attributes with the outcome.

Payne (2006) observes that practitioners no longer have clear boundaries or roles. Multi-professional team work and increasing skill mix are high on the NHS agenda which leads to confusion with respect to identity (Payne, 2006). Radiography is at a crossroads in terms of role development; almost all NHS trusts employ a range of practitioner grades, including assistant radiography practitioners who will undertake similar imaging tasks to

students and radiographers. Aware of such crossed boundaries one participant contemplates career options stating:

'They will be taking over that role so I think there will be at some point no choice you will have to go in one direction or the other'.

(P8)

Although speculative, here lies the possibility that participants are caught in between two identities which has prompted / imposed a premature association with higher grades and advanced practices. This may account for feelings of low self image, restricted development and reduction of skills to a technical level, as during their period of training they may fail to differentiate their skills and abilities and see themselves akin to that of an assistant practitioner.

Summary

The data obtained from the interviews enabled the research question to be fully answered. Students' knowledge of professionalism, how they come to learn and view their actions, the type of professional that emerged and the success of the course in meeting its expected obligations were exposed.

The data reveals how personal frames of reference have remained unchanged and pieces of knowledge remain disconnected which means a

naive view of professionalism persists. Experience is limited and activity systems do not animate the concept in its entirety. Students are not fully engaged with the process of critical reflection and deliberative discourse, elements which are likely to expose and extend their personal understanding and development, which consequently means opportunities for learning and monitoring of achievement become lost. In addition students are not empowered to critically explore alternative perspectives or challenge personal assumptions. Thus students have taken for granted what they have observed and aligned their behaviour accordingly which has left them ill equipped to reconcile competing dilemmas. The findings ultimately reveal how such factors integrate to preserve or weaken professional ideals. This destabilises the chance of progressive professional development and consequently left participants with a view of professionalism that was dominated by technical rationality.

In earlier discussions professionalism was described as troublesome (Perkins, 1999 cited in Meyer and Land, 2003, p.5), in that it has its own language and represents an amalgamation of several other ill defined concepts making definitions and consensus of opinion impossible to reach. The validity of data based around such a topic raises uncertainty about common understanding and thus calls to question the validity of the findings. A weakness of this study is that the interpretations of the qualitative data have been made on the basis of self expression. It cannot

be taken for granted that personal expression represents true understanding of the concept or the values held, particularly when the concept under investigation is difficult to characterize.

However, socialisation theorists (e.g. Lave and Wenger, 1991, p.109) suggest that sense of purpose and understanding come through exposure to and use of the language of the community. It would be reasonable to assume that if participants were genuinely more widely familiar with the concept, they would, in an interview on professionalism, aim to express their values and understanding through the use of this language or by means of illustrated practice. The fact that participants do not express themselves in relation to some aspects of professionalism is indicative (if not conclusive) of a limited understanding of professionalism.

7. CONCLUSIONS

The research set out to explore students' perceptions of professionalism and how factors within the clinical environment supported learning, influenced knowledge and attitudes and prepared students to meet professional standards and requirements. This was based on the assumption that in order to meet the terms of professional practice, students would need to be cognisant of the multidimensional nature of professionalism, have acquired a series of principled values which they consciously apply in practice, and be autonomous decision makers with a capacity for reflection and self regulation. Interpretations of the data show professional development falls short of meeting expected requirements. The conclusions drawn from the interpretations of the data are considered from a factual and conceptual perspective.

It is acknowledged the findings are based upon the opinions of a small group of students from one institution who characteristically were unrepresentative of their own cohort. Although the data is not actually confined to the context of one particular organisation, (as experience takes place within several NHS organisations) and several of the findings concur with that of other research, it would be a misguided assumption to claim that the findings are generalisable beyond this particular discipline specific practice setting.

Despite this being a relatively small scale study it can be claimed that the findings and the discursive interpretation make a major contribution to knowledge. It has been possible through the quantitative and qualitative methods employed, to harvest a rich insight into the perceptions, experiences and development of this small number of students. The research generates a new insight into the socialisation and development of professionals. The nature of this and its relevance to those involved in the education of professionals or curriculum development is summarised at the end of this chapter.

In earlier discussions it was argued that radiography was showing strong evidence of being classed as a profession, particularly as modern healthcare reforms and education offered a supporting infrastructure which would strengthen its position. Assertions were made that the *Learning and Development Framework for Clinical Imaging and Oncology* (CoR, 2007) endorsed the key principles of a professional ideology and that the ensuing curriculum aspired to develop radiographers who had the appropriate knowledge, skills and attitudes to meet the current and future demands of professional practice. However, despite the assertion that radiography students are educated and developed as professionals the findings of the research show that students do not develop in accordance with the expectations. It can be concluded that there is disparity between the intended aims of the curriculum and the outcomes that are achieved. The

reality is that there is conflict between what is actually expected in clinical practice i.e. technological competence, to what is considered appropriate professional practice i.e. engagement with a much broader set of professional values and commitment to a series of stakeholders.

It is worth emphasising that the purpose of the research was to uncover the extent to which the concept of professionalism was effectively embedded within the curriculum, and to establish the success of the institution's present BSc. (Hons) course in developing professionals. It was considered beyond the scope of the research to specifically scrutinise particular aspects of the curriculum and it would be inappropriate to make any direct association between either the academic and clinical components of the course and the unfavourable outcome. It is necessary to appreciate the curriculum has a number of facets. Although data was collected in relation to the clinical component of the course, the intended aims of the course, how they are taught, received, constructed, applied and appreciated by the student are also connected to content, structure and delivery of the academic component. The findings therefore arise from an aggregated learning experience.

The results show that on course entry, participants hold different perceptions about required professional expectations but showed a promising awareness of the multidimensional nature of professionalism and

recognised their obligations towards a series of stakeholders. There was concern for humanistic and caring aspects of practice in association with technical role and the initial interviews gave the impression that these were in unity. Unfortunately practice seemingly pushed participants towards a series of actions to meet the needs of the organisation rather than the patient or the profession. A hidden curriculum of speed and efficiency led to a focus on outcome. Exposure to a culture that was averse to the questioning of practice brought about uncritical replication of unprofessional actions. The rewards that were attached to compliance intensified the association with practical competence and subsequently displaced their goals. Participants' perceptions of practice were diverted from care giving, towards technological competence and efficiency. Unfortunately the process of this shift has undermined the development of a professional identity and weakened the significance of other values that underpin professional practice. The implications of these findings rightly need to be considered in relation to the context of practice and what is known about the concept of professionalism.

Over the last decade there have been major changes to radiographic practice. Initiatives to establish patient centred services and create new roles increased autonomy and accountability (DoH, 1998; 2001; 2003). Consequently, the practice environment and roles have become more complex and are continually being reshaped. Practice is now more

unpredictable and uncertain than before and radiography can no longer afford to be outcome driven. Technical knowledge is no longer accepted as a mark of professionalism. The public have come to expect a service which gives consideration to their needs (Eraut, 1994, p.5). Therefore professionalism is judged by the nature of the interaction and the care and respect that is given to the patient. It is no longer acceptable to function in a prescribed manner. Earlier discussions noted that professional status comes from public recognition (Downie, 1990). Actions that fail to deliver what patients value the most, i.e. time and individualised care (Davis, 2005), undermine levels of trust which ultimately affects radiography's place in society and status as a profession.

A focus on technological competence and performance outcomes in the interest of self and the organisation is incompatible with existing models of professionalism which portray it as a multidimensional concept requiring a correlation between humanistic values, personal qualities, knowledge and competence, allied to a series of stakeholders (e.g. Van de Camp *et al.*, 2004; Swick, 2000). The connection between these factors is a distinctive feature of professionalism such that any separation weakens the claim of being a professional (Jarvis, 1983, p.35). Several authors make the case that it is impossible to be a professional without specific building blocks which provide a frame of reference that shapes thought processes and serve as a foundation to personal actions.

Swick (2000) believes it is not possible to function as a true professional without humanistic values as these bring to the fore the emotional aspects of professionalism which are needed to appreciate how others are feeling and generates the commitment to act in the best interest of others. Eraut (1994, p.112) considers that professionalism is not solely about comprehension of values, it rests on their application in practice.

Professionalism manifests itself in the approach taken to deal with the uncertainty and unpredictability of practice. The quality of the outcome rests on the capacity for critical and independent judgement, which itself is reliant upon a professional ideology (Jarvis, 1983, p.104). Together these help practitioners to decide between conflicting demands and arrive at the best decision in specific circumstances and give the best service to the patient (Eraut, 1994, p.206), and would bring a commitment to continuously monitor and improve personal competence and quality of care (Swick, 2000).

Whilst technological competence is important in order to function as a radiographer and is an essential component of professionalism, it is not enough to define radiography as a profession or establish radiographers as professionals. The findings are discordant with the values and skills a professional is expected to possess. Participants do not fully appreciate professional expectations. They have little concern for the patient and a limited capacity for critical reflection and autonomous thought. According to the literature the programme has produced an incomplete professional

which Hafferty (2006a, p.283) describes as surface professionalism. What exists is a competent practitioner who has the knowledge and skills to be able to meet the demands of the working environment, and perform radiographic examinations, rather than one who embraces a professional ideology and acts independently of context in the interest of service to the patient.

By meeting the requirements of the work place, participants are fit for purpose, but this does not mean they are fit for practice. The current outcome raises questions as to whether participants will meet the demand for accountability and standards of proficiency set down by the *Health Professions Council* (HPC, 2007a; 2008a). The findings ultimately suggest that radiography educators and supervisors in the institutions that form part of this investigation are currently failing in their responsibilities to produce a complete professional by overlooking the need to develop the students in relation to the wider context of professional practice. Equally it suggests that the curriculum itself and the values and practices embedded within it do not encourage students to create new meaning or transform their perspectives of what it means to be a professional radiographer.

As it stands the curriculum appears to impose an educational focus that is geared towards the emergence of a 'product' that models customary practices, behaviours and values. The curriculum does not correspond to

the requirements of professionalism which demands autonomous and critical judgement and development of self to deal with the uncertainty and realities of practice (Eraut, 1994, p.112; Jarvis, 1983, p.42). Becoming a professional is a developmental process reliant upon a number of interrelated cognitive and social processes (Wenger, 1998, p.5; Mezirow, 1997). The evidence suggests that the curriculum undermines the process of 'becoming' as it does not effectively exploit or unite key transformative elements.

The curriculum appears weak in its capacity to equip students with the knowledge, skills and values that would enable them to meet the demands of professional practice. The findings reinforce the need for the curriculum to be revised. Many are sceptical about the value and effectiveness of the formal curriculum and its ability to permeate what is conveyed during clinical practice and transmitted through the hidden curriculum (Hafferty, 2006a, p.292; Cribb and Bignold, 1999). However in this case, a formal curriculum that takes account of a number of issues to ensure deliberative processes are central to a practice that is underpinned by a broader professional ideology is arguably a good starting point.

The findings of the study show that prior to entry into the clinical environment participants' perceptions of professionalism were to some degree congruent with professional expectations. Participants were aware

of its multidimensional nature and conscious of the importance of meeting the needs of various stakeholders. Moreover, they could relate to the humanistic aspects of practice. Herein is the potential (with the employment of appropriate learning and teaching strategies) for the curriculum to positively influence learning and development in line with theorised perspectives. The formal curriculum presents an opportunity to reinforce the values already held and raise awareness of other professional values and behaviours in order to unite, further develop and strengthen perceptions of role and professional expectations. This brings the potential to shape the associations students make between the radiographer's role and expected behaviour. This has the capacity to enhance knowledge transfer, smooth the transition from one setting to another, and help students reconcile contradictions between what they know and value in contrast to what they encounter in practice.

It seems logical that within the formal curriculum greater emphasis needs to be placed upon developing an orientation towards professionalism through cognitive and social learning processes. The study shows that learning in a clinical environment is complex. The reality of developing professionalism through 'learning by doing' alongside members a radiographic community does not correspond with the idealised perspectives on the processes of transformation and socialisation. The findings highlight a need for better partnerships between NHS trusts and higher educational institutions in order

to generate coherence with respect to the aim and delivery of professional education, and also a need to better prepare students prior to entry into the clinical environment.

It is evident that greater attention needs to be given to the development of self through the process of reflection. Hilton (2004) advocates developing the capacity for critical reflection as a means of upholding standards and reconciling disparities in practice. It is clear that in addition to developing skills for personal reflection, the curriculum must develop the capacity to engage in collaborative discussion and reflection. This will open up the opportunity to access alternative insights into professional concepts, values and ways of knowing (Mezirow, 1997), which assists to maximise the chance of developing professional radiographers. However it is evident that the indicative content of the curriculum must raise awareness of a wide range of expectations and provide insight into the hidden curriculum and the conflicts likely to arise within practice. If such skills were effectively developed, they would along with the knowledge generated through the process collectively act as an influential resource that would support students to evaluate their own learning and development and empower them to seek resolutions to the disparity and unfamiliarity that arises in practice. In addition it would assist to raise self awareness of their capacity to meet the demands and expectations of professional practice, and reduce

their reliance upon staff to create the meaning of professional radiographic practice.

At a recent conference Snaith (2007) discussed education in the practice setting, suggesting that educational innovation needed to be balanced against realism. She noted that education increasingly emphasised the development of self and questioned whether educational programmes were attempting to deliver something which those within practice had not identified a need for. Snaith (2007) suggests innovation can deepen the division between education and practice, as educators would be perceived as losing sight of the actual needs of clinical practice. However, professionalism is dynamic and needs constant renegotiation (Cruss *et al.*, 2004). Since post qualification practice is related to initial education (Eraut, 1994, p.41) it is obligatory that educators take the lead on this issue. A narrow professional identity is an undesirable state. Identity defines who we are and where we are going, and thus engenders an element of continuity (Wenger, 1998, p.149). The emergence of an identity that is built upon technical competence is detrimental to the profession. Identity leads to certain actions (Wenger, 1998, p.153). In this study it established and limited the parameters of practice which affected the way the participants related to their practice, the activities they engaged in, the choices they made and their perceived level of accountability.

Radiography has everything to gain by ascending to meet the professional development opportunities it has been granted. Without intervention, such technically orientated values and actions are likely to persist, which consequently will be impressed upon future generations of radiographers. Ultimately this means that other aspects of professional role and responsibilities will remain marginal which inhibits development and undermines any claim that radiography is a profession. Hence, in order to preserve and advance status, radiography education must act autonomously and not allow itself to be entirely driven by workplace philosophies and requirements. It must extend its professional obligations to meet the current and future needs of its stakeholders by developing a curriculum appropriate to cultivating situational responsive individuals, capable of independent and critical thought that is based upon a broad and permanent set of professional ideals.

The aim of the research was to explore the extent to which student radiographers understood the concept of professionalism and identify the factors which influenced development. The intention was to establish the curriculum's coherence and expose the efficacy and impact of the educational processes employed throughout the course, which was achieved. Consequently at a local level the findings provided a foundation to enhance the quality of learning and teaching in both the academic and clinical components of the course, enabling changes or modifications to

curriculum content and delivery so that deficits could be overcome through appropriate and purposeful learning strategies (Appendix 23). As a new innovation it has yet to be evaluated and is clearly a subject for further research.

This research focused on the dynamics and processes of becoming a professional, which was considered to be in short supply. Unlike nursing and medicine, radiography is somewhat behind in conducting research with respect to understanding socialisation and the development of professionalism. Hence within radiography this in itself is a pioneering piece of work. As a consequence of its undertaking the research makes a significant contribution to an existing body of knowledge in relation to socialisation, transformative learning and identity formation and brings enlightenment to the profession of radiography on the subject, opening the door to apply and extend this knowledge.

In taking an integrative approach it has been possible to connect together Mezirow's (1997) transformational learning theory and the work of situational theorists such as Lave and Wenger (1991). Mezirow (1997) and Lave and Wenger (1991) offer what are, on the face of it, different perspectives of transformation. Mezirow's (1997) theory assumes the construction of new perspectives is a cognitive event and manifests through engagement with three transformative elements; experience, discourse and

reflection. Lave and Wenger's (1991, p.51) theory is founded upon social connections with members of the practice community. Mezirow is criticised for neglecting to consider the significance of the psychosocial dimensions of learning (Boyd, 1991 cited Taylor, 1998, p.13). The research demonstrates just how significant these are, and highlights that in the practice setting a relationship existed between the two theories. Staff-student relationships lacked trust and openness. This impacted upon engagement with key transformative elements, and as a consequence cognitive frames of reference remained unchanged.

The work exposes a new insight into the complexity of transformation, exemplifying how intrinsic and extrinsic (environmental) factors, and the hidden curriculum interrelate and impact upon the development of professional perspectives, values and identity. Moreover the work provides an illustrative example of Meyer and Land's (1993, p.10) *liminality*. It shows how such factors operate to suspend the cognitive organisation and understanding of this threshold concept. Herein there is another perspective on professional development as a consequence on socialisation, since the findings contrast to previous studies which show declining attitudes (e.g. Satterwhite *et al.*, 2000).

Many disciplines both inside and outside of the NHS use work based placements to develop knowledge, competence and values. Hence, these

findings are extremely relevant to the work of others, as they provide a comparative insight into the context of practice and enrich understanding with respect to the reality of what is learnt and why and how outcomes run contrary to what is expected. It offers a 'working hypothesis'; insight into what might transpire. It is hoped the work will raise the consciousness of educators, practitioners and professional bodies (particularly in radiography) to act and improve the professional development of practitioners. For other radiographic educators it offers an evidence base for curriculum development in this area.

It was not the intension of this research to propose how curriculum should be designed, but to expose the reality of what is learnt in the context of practice so that educators can consider the appropriateness of their current curricula content, and the learning and assessment strategies that underpin their professional education programme and balance this against the reality. However, the framework offered provides an example of how to approach the harmonisation of the formal, informal and hidden curriculum so that they work together in an integrative manner rather than contrary to each other.

In addition the research serves the profession of radiography by providing insight into future practitioners' understanding and compliance in the adoption and application of expected professional standards and requirements. Information which is of particular significance as it impacts

upon initiatives to certificate practice educators, establish a lifelong learning culture, and enhance clinical effectiveness and professional status. At a practice level it is hoped that the work stimulates supervising radiographers to reflect on their actions, evoking a personal commitment to enhance professionalism by role modelling appropriate behaviours and maximising opportunities for learning by giving thoughtful attention to the transformative agents.

The study is capable of being replicated or used as a foundation for other research. By extending the sample size and conducting research in other contexts or disciplines, there is the potential to test the reliability and validity of the findings reported, and acquire a broader insight into the process of professional development. Although refinements need to be made to the questionnaire for it to be highly reliable, it offers a starting point for the production of a universal tool to measure the development of a composite range of professional attitudes. More generally it shows that the hidden curriculum can be researched and discovered despite its complicated nature.

The work shows that professionalism is a complex topic to internalise and that intrinsic and extrinsic factors influence and intensify the complexity of professional development. It exemplifies that professional development does not automatically occur as a consequence of exposure to the

workplace on the basis that an incomplete and fragmented understanding, deficient and incongruent learning processes fail to bring about transformation. It remains to be seen if the new curriculum acts as an agent for change, particularly as the challenges that need to be overcome in the workplace are unpredictable and cannot be controlled, but it would of course, be unprofessional not to try.

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Characteristics of a profession

Authors	Barber (1963 cited in Turner and Hodge 1970 p24)	Blanchfield (1978 cited in Pyne 1998 p7)	Blane (1991 cited in Price and Paterson 1996 p6)	Downie (1990 p154)	Ellis and Hartley (1995 p10)	Haralambos and Holburn (1995 cited in Walsh 2000 p39)	Hoyle and John (1995 p3-4)	Millerson (1964 cited in Price and Paterson 1996 p4)	Pavalko (1971 p17-25)
Criteria									
Body of knowledge	•	•	•	•	•	•	•	•	•
Extends body of knowledge		•	•	•	•				
Professional / independent body to regulate		•	•						
Standards of competence		•						•	
Practice benefits society	•	•		•		•	•	•	•
Provision of education and training		•	•		•		•		•
Codes of ethics and conduct	•	•	•	•	•	•	•	•	
Altruism	•					•			•
Rewards / prestige / high earnings	•				•	•	•		
Monopoly			•					•	•
Period of socialization	•						•		
Autonomy	•		•	•	•		•		•
Public recognition									
Lifetime commitment					•				•
Community									•

Lord Benson's Criteria as outlined in the *Statements for Professional Conduct* (CoR, 2004, p.21)

1. The profession must be controlled by a governing body, which in professional matters directs the behaviour of its members.
2. The Governing Body must set adequate standards of education as a condition of entry and thereafter ensure that students obtain an acceptable standard of professional competence. Training and education do not stop at qualification. They must continue throughout the member's professional life.
3. The Governing Body must set the ethical rules and professional standards that are to be observed by the members. They should be higher than those established by the general law.
4. The rules and standards enforced by the Governing Body should be designed for the benefit of the public and not for the private advantage of its members.
5. The Governing Body must take disciplinary action, if necessary expulsion from membership, should the rules and standards it lays down not be observed, or should a member be guilty of bad professional work.
6. Work is often reserved to a profession by statute – not because it was for the advantage of the member, but for the protection of the public. Persons with the requisite training standards and disciplines should carry it out.
7. The Governing Body must satisfy itself that there is a fair and open competition in the place of the profession.
8. The members of the profession, whether in practice or in employment, must be independent in thought and outlook. They must not allow themselves to be put under the control or dominance of any persons or organisation that could impair that independence.
9. In its specific field of learning, a profession must give leadership to the public it serves.

Standards of Conduct, Performance and Ethics (HPC, 2004)

As a health professional you must protect the health and wellbeing of people who use or need your services in every circumstance. This means that you must always keep high standards of **conduct**. You must always:

1. Act in the best interest of your patients, clients and users.
2. Respect the confidentiality of your patients, clients and users.
3. Maintain high standards of personal conduct.
4. Provide important information about conduct, competence and health.

Also you must always keep high standards of **performance**. You must always:

5. Keep your professional knowledge and skills up to date.
6. Act within the limits of your knowledge, skills and experience and, if necessary refer on to another professional.
7. Maintain proper and effective communications with patients, clients, users, carers and professionals.
8. Effectively supervise tasks you have asked others to carry out for you.
9. Get informed consent to give treatment (except in an emergency).
10. Keep accurate patient, client and user records.
11. Deal fairly and safely with the risks of infection.
12. Limit your work or stop practising if your performance or judgement is affected by your health.

Finally you must always keep high standards of **ethics**. You must always

13. Carry out your duties in a professional and ethical way.
14. Behave with integrity and honesty.
15. Follow guidelines for how you advertise your services.
16. Make sure that your behaviour does not damage the professions reputation.

Letter from local research ethics committee

Dear Cheryl

FREC 02/05 Investigating the Development and Perceptions of Professionalism Amongst Student Radiographers.

The Faculty Research Ethics Committee discussed your proposal at its meeting on 22nd July 2005. Members of the committee were impressed with the quality of your presentation.

The committee raised two minor points:

In your information letter to students, the committee agreed that there should be a clearer, more emphatic statement that a decision to participate, or not, or to withdraw from the research, would have no impact on the student's future education or progress in the course.

The committee were also concerned that you propose destroying your tape recorded data immediately following transcription. The committee felt that this would be premature and would ask instead that tapes were stored securely at least until you have successfully completed your degree.

The Committee agreed this application could be approved by Chairman's Action subject to satisfactory responses to these concerns. If you would write to me giving your response to these points I will be happy to complete the approval process.

Best wishes for the success of the study,

Yours sincerely,

A handwritten signature in black ink, appearing to be 'Paul Wainwright', written over a horizontal line.

Paul Wainwright

Response to local research ethics committee

8th September 2005

RE: Investigating the Development and Perceptions of Professionalism Amongst Student Radiographers

Dear Professor Wainwright and members of the Faculty Research Ethics Committee,

Thank you for your letter dated 16th August 2005. I was pleased to hear that the proposal I presented met with the prescribed format and would like to thank the members of the committee for taking time to consider it.

In response to the comments made amendments have been made to the letter informing students of the project (please find this enclosed). The section relating to choice of participation has been rewritten. Emphasis has been placed on maintenance of the status quo with respect to education and relationships should students not wish to take part or decide to withdraw from the study.

With respect to the destruction of recorded data following transcription, my justification for this was to ensure students could not be traced to the study. However, I recognize that this was a premature oversight which may result in irretrievable loss of data. The committee can be assured that following transcription recorded data will be stored securely and separately to the anonymous transcripts until the point at which I am awarded my EdD.

I hope that this satisfies the committees concerns and I would like to express gratitude for their co-operation in assisting me in bridging the apparent theory practice gap in radiography and to achieve my ambitions.

Regards

Letter of approval from local research ethics committee

Dear Cheryl

**Re: Investigating the Development and Perceptions of Professionalism
amongst Student radiographers**

Thank you for your letter of 8th September with revised documentation. The points raised by the Faculty Research Ethics Committee have now been addressed and the project can therefore be approved.

I wish you every success with the research.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Paul Wainwright', written over a horizontal line.

Paul Wainwright

Questionnaire: (First phase of the study)

Investigating the effectiveness of the clinical components of the course in relation to preparing students for professional practice.

FIRST QUESTIONNAIRE

Researcher – Cheryl Gee

[Contact details – postal address, telephone number and email address supplied]

Anonymity number:.....

The purpose of the questionnaire is to collate students' perceptions of professional practice. The questionnaire has 2 sections and should take no more than 20 minutes to complete. Please answer ALL the questions and **TICK** the box which represents your opinion, unless otherwise stated. It would be useful if you could justify your choice or add further comments in the space provided. Following completion please return the questionnaire to Cheryl Gee, thank you.

Section 1 – Please tick the box which represents your opinion.

1. Radiographers have a responsibility to enhance standards of care.

- | | |
|-------------------|-----|
| Strongly disagree | [] |
| Disagree | [] |
| Can't decide | [] |
| Agree | [] |
| Strongly agree | [] |

Further Comments:

2. It is a radiographer's responsibility to expose the actions of healthcare practitioners who display unprofessional behaviour.

Strongly agree []
Agree []
Can't decide []
Disagree []
Strongly disagree []

Further Comments:

3. An untidy appearance communicates professional incompetence.

Strongly disagree []
Disagree []
Can't decide []
Agree []
Strongly agree []

Further Comments:

4. All healthcare practitioners have an equal responsibility for the welfare of patients.

Strongly disagree []
Disagree []
Can't decide []
Agree []
Strongly agree []

Further Comments:

5. Radiographers must support the wishes of the patient even if it goes against the wishes of the radiologist.

Strongly agree []
Agree []
Can't decide []
Disagree []
Strongly disagree []

Further Comments:

6. Critical appraisal is a skill required for radiographic practice.

Strongly disagree []
Disagree []
Can't decide []
Agree []
Strongly agree []

Further Comments:

7. The psychological and social factors associated with illness are of concern to radiographers.

Strongly disagree []
Disagree []
Can't decide []
Agree []
Strongly agree []

Further Comments:

8. Radiographers are subordinate to radiologists.

Strongly disagree []
Disagree []
Can't decide []
Agree []
Strongly agree []

Further Comments:

9. Errors in practice should be communicated to the patient.

Strongly agree []
Agree []
Can't decide []
Disagree []
Strongly disagree []

Further Comments:

10. Prejudiced opinions affect the manner in which radiographic examinations are performed.

Strongly agree []
Agree []
Can't decide []
Disagree []
Strongly disagree []

Further Comments:

11. Being sensitive to the needs and feelings of colleagues is not as important as being sensitive to the needs and feelings of patients.

Strongly disagree []
Disagree []
Can't decide []
Agree []
Strongly agree []

Further Comments:

12. Patients with diseases arising as a result of lifestyle are less deserving of medical attention.

Strongly agree []
Agree []
Can't decide []
Disagree []
Strongly disagree []

Further Comments:

13. It is a radiographer's personal responsibility to ensure they are competent to practice.

Strongly disagree []
Disagree []
Can't decide []
Agree []
Strongly agree []

Further Comments:

14. Requesting help demonstrates incompetence.

Strongly agree []
Agree []
Can't decide []
Disagree []
Strongly disagree []

Further Comments:

15. Excellent technical proficiency compensates for an inability to effectively communicate.

Strongly agree []
Agree []
Can't decide []
Disagree []
Strongly disagree []

Further Comments:

16. Patients should be informed of all risks and unpleasant side effects associated with radiographic procedures.

Strongly agree []
Agree []
Can't decide []
Disagree []
Strongly disagree []

Further Comments:

17. It would be disloyal to comment to a senior radiographer on the recurrent poor quality of another radiographer's images.

Strongly disagree []
Disagree []
Can't decide []
Agree []
Strongly agree []

Further Comments:

18. It is a radiographer's role to promote a healthy lifestyle.

Strongly agree []
Agree []
Can't decide []
Disagree []
Strongly disagree []

Further Comments:

19. Undertaking research is not part of a radiographer's role.

Strongly agree []
Agree []
Can't decide []
Disagree []
Strongly disagree []

Further Comments:

20. Failing to act is the same as acting inappropriately.

Strongly disagree	<input type="checkbox"/>
Disagree	<input type="checkbox"/>
Can't decide	<input type="checkbox"/>
Agree	<input type="checkbox"/>
Strongly agree	<input type="checkbox"/>

Further Comments:

21. It is essential that a radiographer's behaviour outside of the clinical environment is consistent with the behaviour expected within the clinical environment.

Strongly agree	<input type="checkbox"/>
Agree	<input type="checkbox"/>
Can't decide	<input type="checkbox"/>
Disagree	<input type="checkbox"/>
Strongly disagree	<input type="checkbox"/>

Further Comments:

22. Gaining knowledge changes personal opinion.

Strongly agree	<input type="checkbox"/>
Agree	<input type="checkbox"/>
Can't decide	<input type="checkbox"/>
Disagree	<input type="checkbox"/>
Strongly disagree	<input type="checkbox"/>

Further Comments:

23. It is acceptable to discuss a patient's medical details amongst people
uninvolved with their care as long as the patients name is not mentioned.

Strongly agree []
Agree []
Can't decide []
Disagree []
Strongly disagree []

Further Comments:

24. Radiographers have a duty to serve the interests of their employing
organization even if this compromises patient care.

Strongly disagree []
Disagree []
Can't decide []
Agree []
Strongly agree []

Further Comments:

For question 25, please turn to next page

25. With reference to the ten characteristics (A – J) listed below:

Please indicate which characteristic you consider to be the most important characteristic a radiographer should possess by placing a number 1 against it. Then indicate which characteristic you consider to be the next most important by placing a number 2 against it and so on, until you get to number 10 which should represent the characteristic which you consider the least important. Please note that each number can only be assigned once and that no two characteristics can be given the same number.

	Characteristic	Number
A	Knowledgeable about subject	
B	Respects confidentiality and privacy	
C	Honest and trustworthy	
D	Unselfishness	
E	Shows empathy towards others	
F	Possesses a high level of technical expertise	
G	Possesses good interpersonal skills	
H	Treats everyone with equal respect	
I	Willing to work as part of a team	
J	Continually acquires new knowledge	

Please complete section 2 (biographical information) over the page.

Section 2 – Biographical details, please TICK the box as appropriate.

Are you: Male ☐

Female ☐

Are you: Asian ☐

Black ☐

White ☐

Other ☐ Please state.....

Are you aged between: 20 – 24 ☐

25 – 29 ☐

30 – 34 ☐

35 – 39 ☐

40 – 44 ☐

45 and over ☐

Have you previously worked (voluntary or paid) within a social / health care environment

Yes ☐

No ☐

If **yes** please state how long this was for? (e.g. three months)

If **yes** please state the nature of the work (e.g. voluntary work with young children with special needs).....

Thank you for taking time to complete this questionnaire. Your willingness to participate is very much appreciated. Please check through the questionnaire to ensure you have answered each question then return the questionnaire to Cheryl Gee.

Classification of questions according to Van de Camp *et al*'s. model (2004)

Public professionalism	Interpersonal professionalism	Intrapersonal professionalism
<ul style="list-style-type: none"> • Radiographers have a responsibility to enhance standards of care. • It is a radiographer's responsibility to expose the actions of healthcare practitioners who display unprofessional behaviour. • An untidy appearance communicates professional incompetence. • It is a radiographer's personal responsibility to ensure they are competent to practice. • It would be disloyal to comment to a senior radiographer on the recurrent poor quality of another radiographer's images. • Undertaking research is not part of a radiographer's role. • Failing to act is the same as acting inappropriately. • It is essential that a radiographer's behaviour outside of the clinical environment is consistent with the behaviour expected within the clinical environment • It is acceptable to discuss a patient's medical details amongst people uninvolved with their care as long as the patient's name is not mentioned. • Radiographers have a duty to serve the interests of their employing organization even if this compromises patient care. 	<ul style="list-style-type: none"> • All healthcare practitioners have an equal responsibility for the welfare of patients. • Radiographers must support the wishes of the patient even if it goes against the wishes of the radiologist. • The psychological and social factors associated with illness are of concern to radiographers. • Errors in practice should be communicated to the patient. • Being sensitive to the needs and feelings of colleagues is not as important as being sensitive to the needs and feelings of patients. • Patients with diseases arising as a result of lifestyle are less deserving of medical attention. • Excellent technical proficiency compensates for an inability to effectively communicate. • Patients should be informed of all risks and unpleasant side effects associated with radiographic procedures. • It is a radiographer's role to promote a healthy lifestyle. 	<ul style="list-style-type: none"> • Critical appraisal is a skill required for radiographic practice. • Radiographers are subordinate to radiologists. • Prejudiced opinions affect the manner in which radiographic examinations are performed. • Requesting help demonstrates incompetence. • Gaining knowledge changes personal opinion.

Interview questions: First phase of the study

Question	Probes
1. Why did you choose to study radiography?	<i>What was the reason? What influenced the decision?</i>
2. What attracted you towards radiography?	<i>Why?</i>
3. Were you employed before you came into radiography?	<i>What did this involve? What were responsibilities? Was this role similar to radiography? How / why not? Why did you decide to change career?</i>
4. Are you currently employed?	<i>What does this involve? What are responsibilities? Is role similar to radiography? How / why not?</i>
5. Have you had any previous experience which involved care and interacting with people?	<i>What did this involve? What were your responsibilities Is this something you enjoyed? Was role similar to radiography? How / why not?</i>
6. Before you entered radiography what did you perceive the role of a radiographer to be?	<i>How had you drawn these conclusions?</i>
7. Following your experience, have your perceptions changed?	<i>How? What has changed? Is this a change for the better? Why / why not?</i>
8. Do you see radiography as a long term career?	<i>Why / why not? What do you intend to do and why?</i>
9. What makes you proud to be a radiographer?	<i>Why?</i>
10. Is there anything about radiography that disheartens you?	<i>Why?</i>

- | | |
|--|--|
| 11. What are your career aspirations? | <i>Why?</i> |
| 12. Do you see yourself as a university student, a student radiographer or a radiographer? | <i>Why this and not other choices?</i> |
| 13. When in the clinical department do you see yourself as part of the imaging team? | <i>Why / why not?</i> |
| 14. Do you consider radiography to be a profession? | <i>Why / why not?</i>
<i>What distinguishes it from an occupation?</i>
<i>How would you define a profession?</i> |
| 15. Do you think radiographers consider themselves to be in a profession? | <i>Why / why not?</i>
<i>Does it bother you?</i> |
| 16. Do you think the public considers radiography to be a profession? | <i>Why / why not?</i>
<i>Does it bother you?</i> |
| 17. Do you think radiologists consider radiography to be a profession? | <i>Why / why not?</i>
<i>Does it bother you?</i> |
| 18. What does the term professional mean to you? | <i>Why?</i> |
| 19. Do you think the behaviour of professionals differs from that of non – professionals? | <i>Why / why not?</i> |
| 20. Do you think anyone can be a radiographer? | <i>Why / why not?</i> |
| 21. What attributes and behaviours make a professional radiographer? | <i>Why?</i>
<i>Why are they required?</i> |
| 22. What attributes and behaviours make an unprofessional radiographer? | <i>Why?</i>
<i>Why are such characteristics undesirable?</i> |
| 23. What professional attributes and behaviours do patients expect in a radiographer? | <i>Why?</i>
<i>Why are these features important to them?</i> |

- | | |
|--|---|
| 24. What professional attributes and behaviours do department managers expect in a radiographer? | <i>Why?
Why are these features important to them?</i> |
| 25. What professional attributes and behaviours do colleagues expect in a radiographer? | <i>Why?
Why are these features important to them?</i> |
| 26. Whose professional expectations do you think a radiographer should strive to meet – patient, manager or colleague? | <i>Why?
Why this and not other choices?</i> |
| 27. With reference to professional behaviour what guides your actions? | <i>Why?
How?</i> |
| 28. Does the code of conduct influence your behaviour? | <i>Why / why not?
If so, in what way?</i> |
| 29. How have you come to learn what is appropriate professional behaviour for a radiographer? | <i>How has this influenced your practice?</i> |
| 30. What experience and events have taught you what is appropriate professional behaviour? | <i>How has this influenced your practice?</i> |
| 31. What experience and events have taught you what is inappropriate professional behaviour? | <i>How has this influenced your practice?</i> |
| 32. Do you change your behaviour depending on the patients, circumstances or staff you are working with? | <i>How and why? Or why not?</i> |
| 33. Do you feel on placement that your behaviour is restricted in any way? | <i>If so how / why?</i> |


Interview questions: Second phase of the study

Question	Probes
1. How much have you enjoyed your time in the clinical department?	<i>Why / why not?</i>
2. What type of activities have you had the opportunity to engage in?	<i>Explore nature of these and what influenced opportunity</i>
3. How much responsibility and autonomy do you feel you have had?	<i>Why / why not?</i> <i>What were responsibilities?</i> <i>How did this make you feel?</i>
4. Have there been aspects of your clinical placement that have caused you anxiety?	<i>Explore nature of anxiety</i> <i>How did this make you feel?</i> <i>How did you deal with this?</i>
5. Do you think that through the duration of your placement you have made a valuable contribution to healthcare?	<i>Why / why not?</i> <i>How does this make you feel?</i>
6. How does your relationship with staff at your second clinical site compare to that of your first clinical site?	<i>Explore difference (if any) and feelings for this.</i>
7. Do you think the radiographers you have worked with regard you as a colleague?	<i>Why / why not?</i> <i>How did this make you feel?</i>
8. How influential have clinical staff been in helping you formulate ideas about what it means to be a professional?	<i>In what way?</i>
9. How would you describe your relationship with the other students you have been placed with?	<i>Explore nature of this</i>
10. How influential have they been in helping you formulate idea about what it is to be a professional?	<i>If so how?</i> <i>If not why not?</i>
11. During your clinical experience have there been opportunities to discuss professional practice with others?	<i>If so what was discussed?</i> <i>If not why not?</i>

- | | |
|--|--|
| 12. How easy has it been for you to share your concerns about your practice with others? | <i>Why / why not?</i> |
| 13. Have your perceptions of the radiographer's role changed within the last year? | <i>What has changed?
Are you at ease with this observation?</i> |
| 14. Have your previous perceptions about radiography being a profession changed? | <i>Remind students of these
If so how?
If not why not?</i> |
| 15. Has your time in clinical practice changed your perception of what it means to be a professional? | <i>Remind students of these
If so how?
If not why not?</i> |
| 16. Over the last year how do you feel you have developed as a radiographer? | <i>Explore reasoning</i> |
| 17. What are your strengths and weaknesses as a healthcare professional? | <i>How have you become aware of these?</i> |
| 18. Have you received any negative criticism about your practice and behaviour? | <i>If so what
How did this make you feel?
How did they deal with this?</i> |
| 19. How useful have your key activity sheets been in helping you plan your personal development? | <i>Why / why not?
Explore feedback and reflective elements</i> |
| 20. Do you think your clinical experience has changed you as a person? | <i>If so how?
How do you feel about this change?
What impact has it had on practice and personal life?
If not why not?</i> |
| 21. Have you had experiences which have made you challenge your personal beliefs? | <i>If so, what were these?
How did you feel?
What impact has it had on practice and personal life?</i> |
| 22. What aspects of our own personality have you had to challenge / change in order to meet expected role and professional requirements? | <i>Explore these
How have you come to realise a need for change?
How did you seek to address this?</i> |


- | | |
|---|---|
| 23. Have you experienced conflicts between what you are expected to do as a professional and what you are required to do in practice? | <i>If so, what were these?
Why do you think such conflicts exist?
How do you feel about this?</i> |
| 24. Which of the following do you now associate yourself with – university student, student radiographer, or radiographer? | <i>Why this and not other choices?</i> |
| 25. Can you define the moment or a moment when you felt like a radiographer? | <i>Explore this
How did this make you feel?</i> |
| 26. How would you describe your ideal radiographer? | <i>Is this based on a particular person?</i> |
| 27. How close are you to this image? | <i>Explore reason for match / mismatch</i> |
| 28. Are you looking forward to qualifying? | <i>Why / why not?</i> |
| 29. Are there any aspects of practice you feel you have left to learn or need to prepare for? | <i>Explore these</i> |
| 30. Do you think your role will differ when you qualify? | <i>If so how
If not why not?</i> |
| 31. Do you think different expectations will be placed on you? | <i>If so how and how are they going to prepare for the change?
If not why not?</i> |
| 32. What are your future career plans? | <i>Explore reasons and motivation for choice</i> |

PowerPoint presentation: An overview of the study




Educational Research Project

Cheryl Gee 2005




Here is your chance.....

- ❑ To play a part in the research project.
- ❑ 'Investigating the effectiveness of the clinical components of the diagnostic radiography course in relation to preparing students for professional practice'.
- ❑ To help your lecturer gain a qualification




The purpose of which is.

- ❑ To explore student's development values, beliefs and behaviour throughout the year long clinical block
- ❑ To improve the quality of teaching in the academic and clinical modules




What you should know

- ❑ Ethical approval has been granted
- ❑ Considered a worthwhile and much needed study that has been well formulated
- ❑ This study has not been instigated by the University



What is involved ?

- ❑ The completion of three questionnaires
December 2005, May 2006 and January 2007
- ❑ Two interviews – December 2005 / January 2006 and again in January 2007



Can I choose?

- ❑ Yes
- ❑ You can choose either to:
 - ❑ Complete the questionnaires
or
 - ❑ Complete the questionnaires and be interviewed

What's in the Questionnaire?

- 24 questions
- Multiple choice (likert scale)
- Seeks opinion / levels of agreement with statements
- NOT A TEST
- Anonymous
- Initial questionnaire completed as a group

What does the interview involve?

- 60 minutes of your time
- One to one
- Private and confidential conversation a time and place to suit you
- Recording options available
- Only 10 participants required thus selection will be random from those who express an interest.

What else should I know ?

- You are under no obligation to take part
- No other radiography staff will know you have agreed to participate
- No other radiography staff will see any raw data
- You do not have to 'sign up' to take part immediately. You have until early December 2005 to decide

How do I go about taking part?

- Read the information sheet carefully
- Read and return the consent form to Cheryl Gee as soon as possible
- Await to be contacted

What if I don't want to take part?

- That's fine
- No effect on education
- No further action is necessary

ANY QUESTIONS?

Invitation to participate in the study

Investigating the effectiveness of the clinical components of the course in relation to preparing students for professional practice.

Researcher – Cheryl Gee

[Contact details – postal address, telephone number and email address supplied]

Dear Students,

I am proposing to undertake a research study as part of a Doctorate in Education Programme. The aim of my study is to investigate the effectiveness of the clinical components of the course in relation to preparing students for professional practice. I am thus looking for students who are willing to take part. Although this investigation will not directly benefit you it will enable the quality and content of subsequent academic and clinical modules to be improved for future students.

In order to address the issue I need to gather data from students. Your year has been chosen because you are about to embark upon a year long clinical placement. I am keen to gather information on your learning experiences throughout this time.

The study has three phases; the study begins December 2005 and ends January 2007.

Phase1 – December 2005, completion of a questionnaire and interview on your perceptions before you begin your year long clinical block. Please note that this will not be a test. Interviews will take place in January 2006.

Phase 2 – May 2006, completion of a questionnaire similar in nature to that in Phase 1. This coincides with the change of clinical placement.

Phase 3 – January 2007 completion of a questionnaire and interview at the end of clinical placements.

You may choose to only complete the questionnaires or complete the questionnaires and be interviewed. Of those students who express an interest in being interviewed, 10 will be randomly selected. Interviews will take place at the start and end of your year long clinical placement. Both these interviews will be held at a time and place to suit you.

Please note: You are under no obligation to take part in this study and do not have to provide a reason for your decision. Should you agree to take part and then change your mind you have the right to do so at any point without giving a reason. In both instances your education, progression through the course and relationship with staff members will not be affected. Before deciding if you wish to take part please read the following information.

Ethical approval to undertake this study has been granted by [*name of institution*]. The data collected will form no part of any other study. This study has not been instigated by the University but by me in order to complete my own academic studies. You are assured that all data from the questionnaire and interviews will remain confidential and anonymous and will not be seen by radiography staff or by other students. Data will only be analyzed by me and another researcher.

If you would like to participate please read and sign the enclosed consent form and return it to me. If you have any questions about the study please do not hesitate to contact me. Many thanks, regards

Cheryl Gee

Consent form

Investigating the effectiveness of the clinical components of the course in relation to preparing students for professional practice.

Researcher – Cheryl Gee

[Contact details – postal address, telephone number and email address supplied]

If you are interested in participating in the aforementioned study please read the information provided in the accompanying letter then complete and sign this form before returning to me in the envelope provided. Thank you.

I would like to participate and confirm that:

- I have read the information sheet provided Yes [] No []
- I understand my participation is voluntary Yes [] No []
- I understand that all information will remain anonymous
and confidential Yes [] No []
- I understand that I can withdraw from the study at any time Yes [] No []
- I would be willing to be interviewed Yes [] No []

Name

Preferred method of further contact (home address / email).....

Contact details

.....

Signed..... Date.....

PowerPoint presentation: Instructions for completing the questionnaire

Investigating the effectiveness of the clinical components of the course in relation to preparing students for professional practice.

FIRST QUESTIONNAIRE

Welcome – please help yourself to the refreshments

Completing section 1

- This section has 25 questions
- For questions 1 - 24 there is a positive or negative statement
- Please read each statement carefully**
- Select from a list of options that which represents your opinion.
- There is space after each question to comment / justify your answer
- Remember - THIS IS NOT A TEST

Completing section 1 cont...

E.g. Bananas are my favourite fruit.

E.g. Cherries are not my favourite fruit.

Strongly disagree [] Disagree [] Can't decide [X] Agree [] Strongly agree []

Strongly agree [X] Agree [] Can't decide [] Disagree [] Strongly disagree []

Further Comments: If you wish, please use this space to provide any comments.

Further Comments: If you wish, please use this space to provide any comments.

Completing section 1 cont...

Question 25 asks you to rank characteristics in order of importance from numbers 1 – 10

1 = most important
10 = least important

No number can appear more than once

Characteristic	Rank
A Friendly	8
B Helpful	1
C Knowledgeable	4
D Good speaker	3
E Patient	7
F Good listener	5
G Organised	6
H On time	10
I Innovative	2
J Tests knowledge	9

Completing Section 2

A short series of questions about yourself (biographical details)

Tick the boxes which are appropriate to you.

E.g. Are you: Male [] Female [X]

Following completion

Please check to make sure that you have answered all the questions

Place the questionnaire in the box provided

After which you may leave

Thank you for taking time to attend and take part in the study.

Are there any questions?

Invitation to be interviewed

Investigating the effectiveness of the clinical components of the course in relation to preparing students for professional practice.

Research study – First Phase

Researcher – Cheryl Gee

[Contact details – postal address, telephone number and email address supplied]

Dear *[Participant's name]*

As you are aware the aforementioned study has several elements to it. The second part of the first phase is due to begin. Previously you agreed to be interviewed and consequently your name has been randomly selected along with nine other students. I would be grateful if you would contact me to confirm that you are still willing to be interviewed, and to arrange a suitable time and place for this to occur.

Please note, if you have changed your mind that is fine but I will need to know (you are not obliged to provide a reason) in order to allocate a replacement. This interview will be the first of two interviews (the second being at the end of your year long clinical placement), each interview should last approximately one hour and will be conducted at a time and place suitable to you, and any costs you incur will be refunded. I would like to emphasize that this is not a test and that there are no right or wrong answers, the nature of this interview is to draw upon your understanding and personal experiences.

As you are currently in clinical placement the best way to contact me would be via email. If this is a problem for you please telephone or write to me (postage will be refunded) I look forward to hearing from you soon. Regards,

Cheryl Gee

**The format of the interviews as recommended by Robson (2002, p.277)
and in line with research ethics.**

- ❖ Introduction and welcome.
- ❖ Explanation of purpose and format with an opportunity to ask questions and clarify concerns.
- ❖ Reassurance of anonymity and confidentiality, polite reminder to keep the content of the interview confidential in order to maximise validity.
- ❖ Reminder that as a registered practitioner the researcher is also bound by a professional code of conduct. If breaches in the code of conduct are exposed there will be an obligation to explore and take an appropriate course of action.
- ❖ Reminder of entitlement not to answer particular questions and to withdraw from the interview.
- ❖ Reminder of expectations, that is, personal experience with no right or wrong answers.
- ❖ Reaffirmation of consent. (Appendix 15)
- ❖ Test recording to verify audio tape recorder is operational.
- ❖ Semi-structured interview with predetermined questions, sequence to include 'warm up' questions to relax the interviewee, encourage engagement in conversation and judge motivation to take part.
- ❖ Closure and debriefing (unrecorded) to include a review of the interview, reassurance relating to confidentiality and use of data.
- ❖ Appreciation of willingness to partake.

Consent form: Reaffirmation prior to interview

Investigating the effectiveness of the clinical components of the course in relation to preparing students for professional practice.

Research Study – First Phase

Researcher – Cheryl Gee

[Contact details – postal address, telephone number and email address supplied]

Having agreed to be interviewed I confirm that:

- The purpose and format of the interview has been explained Yes [] No []
- I have had the opportunity to ask questions and discuss the study Yes [] No []
- I have received satisfactory answers to my questions Yes [] No []
- I have received contact details in case I need more information Yes [] No []
- I understand that I can refuse to answer questions Yes [] No []
- I understand that I can terminate the interview at any time Yes [] No []
- I understand the purposes for which the data will be used Yes [] No []
- I understand that all information will remain anonymous
and confidential Yes [] No []
- I understand that I will not be identifiable in any published material Yes [] No []
- I give permission for the interview to be recorded on audio tape Yes [] No []
- I give permission for notes to be taken during the interview Yes [] No []

Name

Signed..... Date.....

I believe that consent is informed and that the above participant understands the implications of participation. Signed.....Date.....

Letter requesting verification of transcript

Investigating the effectiveness of the clinical components of the course in relation to preparing students for professional practice.

Researcher – Cheryl Whiting

[Contact details – postal address, telephone number and email address supplied]

Dear *[Participant's name]*

Many thanks for agreeing to take part in the aforementioned project. I have pleasure in enclosing a transcript of the interview which took place. I would be grateful if you would kindly review the transcript and complete the slip at the bottom of this letter, cut it off and send it to me in the envelope provided. The copy of the transcript is yours to keep. The data you have provided has proved to be most useful in evaluating students' progressive development towards building a professional identity. I would welcome any further comments you wish to make on any of the issues discussed. I look forward to receiving your reply. Thank you again for your input and I wish you well in your future career.

Investigating the effectiveness of the clinical components of the course in relation to preparing students for professional practice.

Name.....

- I confirm that the transcript I received is that of the interview that occurred between myself and the interviewer Cheryl Whiting (formerly Gee) Yes [] No []
- This appears to be an accurate record of the interaction that occurred Yes [] No []
- I have returned the transcript and made necessary corrections Yes [] No []
- I have enclosed additional comments to support my response Yes [] No []

Invitation to participate in the pilot study

[Details of address, telephone number and email address supplied]

18th October 2005

Re: Invitation to take part in a pilot study

Dear Students

I am proposing to undertake a research study as part of a Doctorate in Education Programme with the Open University. The aim of which is to investigate the effectiveness of the clinical components of the course in relation to preparing students for professional practice. As you will be aware before any major study can be undertaken a pilot study needs to be undertaken, and thus I am looking for students who would be willing to take part. The purpose of the pilot study is to gather information about your professional development throughout the last clinical year, to aid the formation of a questionnaire and test out my chosen methodology. Although this investigation will not directly benefit you it will enable the quality and content of clinical education to be improved for future students.

I am proposing to interview five students who will be willing to share their views on their clinical experience and complete and review a questionnaire. **Please note:** This will not be a test and you are under no obligation to take part in this study and do not have to provide a reason for your decision. Your education, progression through the course or relationship with staff members will not be affected. Before deciding if you wish to take part please read the following information.

The interviews will take place during November 2005; the interview will last about 60 minutes and will be conducted at a time and place to suit you. The data collected will form part of a pilot project report but will not be part of the main study. All recorded data will be destroyed following transcription. Transcriptions will be analyzed by another researcher, unconnected with the faculty and myself. You will receive a copy of the transcription and any material prior to its publication. You are assured that all data will remain confidential and anonymous, and raw data will not been seen by any member of the radiographic staff or by other students. Should you agree to take part and then change your mind you have the right to do so at any point without giving a reason, this will not affect your education or staff-student relationships.

If you would like to participate please read the enclosed consent form. As you are currently in clinical placement I would be grateful if you would contact me via e-mail or telephone to inform me of your willingness to partake. Whereupon I will contact you, consent forms can be returned to me directly or by post. Costs for postage and travel will be refunded. If you have any questions about the study please do not hesitate to contact me. Many thanks, regards,

Cheryl Gee

Instructions to pilot study participants

Investigating the effectiveness of the clinical components of the course in relation to preparing students for professional practice.

Researcher – Cheryl Gee

[Contact details – postal address, telephone number and email address supplied]

Thank you for agreeing to take part in the Pilot study for the aforementioned research study. If you have not already done so, please can you return your consent form in the white envelope provided.

Please take some time to read the following instructions carefully.

Enclosed are the following:

- Information leaflet / letter to be sent to the second year students (Green sheet)
- Questionnaire to be given to the second year students (Pink sheet)
- A questionnaire relating to the layout structure and design etc. of the information sheet and questionnaire (Blue sheet)

At your earliest convenience please read through the green information sheet, and then complete the pink questionnaire. It would be useful if you would complete the pink questionnaire providing an honest and personal opinion. This would enable an interim report to be written which would help establish likely outcomes of the study. The 'further comments' sections are there to provide an opportunity for you expand / justify your choice of answer. If you have comments to make about the questions (e.g. their wording etc.) please indicate this on the blue sheet. I would welcome honest comments about the design of the information sheet and questionnaire and their contents. Once you have completed the above please return the green, pink and blue sheets to me in the brown envelope provided.

Please note that all information received will remain confidential and I ask that in order to maintain validity that you do not disclose the content or nature of the questions to other students.

Once again thank you for agreeing to take part in the study, if you have any questions about the study or are unsure about how to proceed please do not hesitate to contact me. I look forward to receiving the completed questionnaires soon. I shall be in touch shortly to arrange an interview.

Regards

Cheryl Gee.

Evaluation of the pilot questionnaire

**Investigating the effectiveness of the clinical components of the course in relation
to preparing students for professional practice.**

PILOT STUDY

Researcher – Cheryl Gee

[Contact details – postal address, phone number and email address supplied]

**Please answer the following questions which relate to the green information sheet
and pink questionnaire**

From the green information sheet was it apparent why the study was being undertaken?
Yes [] No []

From the green information sheet was it apparent why you had been asked to take part?
Yes [] No []

From the green information sheet was it apparent this study formed part of a lecturer's
own personal development? Yes [] No []

From the green information sheet was the level of involvement expected made clear?
Yes [] No []

From the green information sheet was it clear that you could opt to only be interviewed /
complete a questionnaire? Yes [] No []

Were there any spelling mistakes or grammatical errors within the green information
sheet? Yes [] No []

If so please specify and indicate where.....
.....
.....

Did you find the pink questionnaire easy to complete? Yes [] No []
If not please specify and state why
.....
.....

Did you understand the questions on the pink questionnaire? Yes [] No []
If not please specify and state why
.....
.....

Were any of the questions on the pink questionnaire ambiguous? Yes [] No []
If so please specify and indicate why.....
.....
.....

Were there any spelling mistakes or grammatical errors within the pink questionnaire?
Yes [] No []
If so please specify and indicate where.....
.....
.....

Approximately how many minutes did it take you to complete the pink questionnaire?
.....

Did you consider this to be too long? Yes [] No []

Please use the space below and over the page to add any further comments you have on the content and layout of the pink questionnaire and green information sheet. Suggestions on how to improve these are welcome.

Thank you for your time and effort. Regards,

Changes to wording of questions as a result of the pilot study

Original wording	Justification for change	Change to wording
Radiographers have a responsibility to develop standards of care.	'To develop' was perceived to mean original construction of, not advancement of standards of care.	<i>Radiographers have a responsibility to enhance standards of care.</i>
It is a radiographer's responsibility to challenge healthcare practitioners who display unprofessional behaviour.	'Challenge' was perceived to mean direct confrontation. Comments made were contradictory to selected opinion. Participants disagreed yet claimed they would report to a manager. As overall scores are to be produced this would skew results.	<i>It is a radiographer's responsibility to expose healthcare practitioners who display unprofessional behaviour.</i>
Radiographers and radiologists have the same level of importance within the healthcare team.	Participants questioned the 'level of importance'. Comments showed this was taken to mean several things e.g. responsibility and patient management.	<i>Radiographers are subordinate to radiologists.</i>
It is inappropriate for radiographers to comment to other practitioners on the poor quality of another radiographer's images.	It was apparent 'Practitioners' and 'inappropriate' were vague terms. Participants answers indicated they had took this to mean one instance and explored technical or situational circumstances which may affect image quality.	<i>It would be disloyal to comment to a senior radiographer on the recurrent poor quality of another radiographer's images.</i>
It is a radiographer's role to promote beneficial lifestyle changes	This was perceived in terms of counselling patients and offering dietary advice.	<i>It is a radiographer's role to promote a healthy lifestyle.</i>
Radiographer's responsibilities extend beyond the clinical environment.	Participant's answers showed they had interpreted this to mean technical skills e.g. taking images, which could not be applied as equipment was required. It was considered that the term 'responsibilities' did not point towards behaviour.	<i>It is essential that a radiographer's behaviour outside of the clinical environment is consistent with the behaviour expected within the clinical environment.</i>

Pilot interview questions

Question	Probes
1. Why did you choose to study radiography?	<i>Establish motivation for entry</i>
2. Were you employed before you came into radiography?	<i>Establish if this involved care / interacting with people.</i>
3. Is radiography living up to your expectations?	<i>Explore reasoning</i>
4. Do you see radiography as a long term career?	<i>Explore reasoning</i>
5. Do you see yourself as a university student or as student radiographer?	<i>Explore reasoning</i>
6. Within your placement did you see yourself as part of a team?	<i>Explore reasoning</i>
7. Do you consider radiography to be a profession?	<i>Explore reasoning and seek to determine what participants consider a profession to be</i>
8. Can you describe the role of a radiographer?	<i>Explore ideas and reasoning</i>
9. Do you think that anyone is capable of performing radiography or being a radiographer?	<i>Explore reasoning</i>
10. What characteristics / attributes make a 'good' radiographer?	<i>Explore ideas and reasoning</i>
11. What characteristics / attributes make a 'bad' radiographer?	<i>Explore ideas and reasoning</i>
12. What do you think is the public's perceptions of radiographers?	<i>Explore reasoning</i>
13. What attributes / behaviours do patients look for in a radiographer or expect of a radiographer?	<i>Explore ideas and reasoning</i>

- | | |
|--|---|
| 14. How does this compare with management expectations of how a radiographer should behave? | <i>Explore ideas and reasoning</i> |
| 15. With reference to behaviour what guides your actions? | <i>Explore ideas and reasoning and the extent and how / why use as a guide</i> |
| 16. How have you learnt what is and what is not appropriate behaviour for a radiographer? | <i>Explore ideas and reasoning</i> |
| 17. Are there any 'unwritten rules' which guide your behaviour? | <i>Explore ideas and reasoning and understanding of why such rules exist</i> |
| 18. What experiences within the clinical department have guided your knowledge of a radiographer's role? | <i>Explore ideas and reasoning, seek to explore both positive and negative experience.</i> |
| 19. What experiences within the clinical department have guided your behaviour? | <i>Explore ideas and reasoning, seek to explore both positive and negative experiences</i> |
| 20. How has behaviour changed as a consequence of these experiences? | <i>Explore ideas and reasoning</i> |
| 21. Do you change your behaviour depending on patients / circumstances / which staff member you work with? | <i>Explore reasoning</i> |
| 22. How do you get to know that your behaviour is appropriate? | <i>Explore ideas and reasoning</i> |
| 23. How do you get to know that your behaviour may be inappropriate? | <i>Explore ideas and reasoning</i> |
| 24. Do you feel your behaviour is restricted in any way? | <i>Explore ideas and reasoning, establish if participants are prevented from 'good' behaviour</i> |

Revised Interview Schedule (page 1 as an example)

Comments:		
	Question	Probes
1	Why did you choose to study radiography?	<i>What was reason?</i> <i>What influenced decision?</i>
2	What attracted you towards radiography?	<i>Why?</i>
3	Were you employed before you came into radiography?	<i>What did this involve?</i> <i>What were your responsibilities?</i> <i>Was your job / role similar in any way to radiography? – if so how?</i> <i>Why did you decide to change career?</i>

Changes to curriculum design and content

Within the academic components of the course there are now three *Professional and Personal Development* modules (PPD). PPD 1 and PPD 2 are delivered prior to the year long clinical placement and PPD 3 is delivered after. Each module has an overarching theme and is structured in accordance with Mezirow's theory (1997). Hence each module aims to offer experience, discourse and reflection in order to transform personal perspectives. A blended learning approach is taken. Topic experts deliver key information via lectures. Small group work follows where students use a case based scenario / research articles to interact, discover, debate and evaluate various professional expectations. The electronic learning management system *Blackboard* offers further opportunities to access information and engage in discussion. The assessment strategies are designed to develop critical and reflective thought and engage students with other professional expectations such as evidence based practice.

PPD 1: Self development in accordance with professional responsibilities

The module aims to develop awareness of the significance of communication and professional conduct in healthcare practice, familiarise students with theoretical concepts and legislative frameworks that underpin practice and develop an appreciation of role and responsibilities in delivering care and supporting patients with diverse needs. The assessment for this module is in two parts; firstly students analyse a clinical scenario with regard to the actions of the healthcare practitioner in relation to the professional concepts, theories, legislation, codes and the needs of the patient, and then reflect on what they have learnt from this and how their perceptions of professional responsibilities have developed since undertaking the module.

PPD 2: Improving the quality of care and practice

The module aims to place research and communication within the context of professionalism enabling students to see their relevance to practice. Theories of communication and research are taught through the use of peer reviewed research articles. This module aims to equip students with the knowledge and skills to critically evaluate, conduct and utilize research in practice, to develop awareness of self, professional and ethical expectations in the delivery and development of healthcare practice, to promote awareness of the quality monitoring and enhancement of patient centred healthcare and to develop methods of communicating with specific patient groups in a variety of circumstances. Within the assessment students critique a research article and discuss its relevance to practice, and produce a *PowerPoint* conference style presentation related to improving the quality of care through communication.

PPD 3: Multi-professional working, education and maintenance of standards

This module is multidisciplinary and endeavours to prepare students for qualified practice within the NHS. The module aims to promote an appreciation of the need to maintain standards of competence and lifelong learning, to develop practice within a multi-professional health care team and to familiarise students with theories of management, social policy and supervisory practice. For the assessment students are required to propose a change to practice / service provision (which has a multi-professional dimension) and produce a report which critically appraises the justification of the change in line with many theoretical concepts this module incorporates.

In addition to this, half way through the year long clinical placement students' return for a two week academic placement in which they revisit and reflect on several issues relating to professionalism via a series of small group activities and case based scenarios.